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MERCURY, BLUE PILL,

AND

CALOMEL;

THEIR USE AND ABUSE.

BY

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DEDICATION.

TO JAMES JOHNSON, M.D. &c.

MY DEAR DR. JOHNSON,

ALTHOUGH your medical reputation, your intellectual attainments, and your laborious writings, had long been familiar to me, it was not until this country was threatened by the invasion of a formidable disease, the cholera, that I enjoyed any personal acquaintance with you.

A similarity of pursuit, an anxious desire to study the character of this enemy to the race of man, brought us into daily contact. We saw the subject in the same light; you were experienced in the diseases of hot climates, I was not; you therefore were enabled to explain to me, from your own experience, subjects with which I was only acquainted by reading. I was delighted with the clearness of your explanations and the soundness of your views. We sought opportunities to carry our inquiries into

effect. We were satisfied on a point of the deepest importance to this country, that the disease which presented itself to our view was not contagious. We detected, and exhibited to the profession, instances in which, in the midst of alarm, cases were prematurely pronounced to be cholera, and were about to be treated as such. We promulgated our opinion, amidst clamour, opposition, and the most unwarrantable assertions. To me, however, it is a source of most grateful recollection, that together we checked the alarm which threatened greater danger than the disease. I look back to that period with much delight ; I feel that I was a humble contributor to the public good, and that I learnt to respect you for your talents, your zeal, and likewise for those qualities of the heart which add lustre to scientific attainment.

Ever, my dear Dr. Johnson,

Faithfully yours,

GEORGE G. SIGMOND.

24, Dover Street, January 1840.

P R E F A C E.

THE volume which I have now the honour to submit to the Medical Profession, is a collection of some Lectures which have already been deemed worthy consideration, and have therefore appeared amongst the periodical literature. They attracted attention during the time at which they were delivered, and copious extracts were made from them by the journals, domestic and foreign. I have brought together the scattered materials, and have placed them within the reach of those who may be desirous to possess a small treatise upon a subject of vital importance to the great community.

A work of greater magnitude might have furnished an opportunity of compiling and arranging the opinions and theories of some of the first labourers in the cause of science. I, however, wished to exhibit the practical experience of the most eminent physicians and surgeons, in order to incite the student to emulation by example, and to point out to him the knowledge that was of the greatest value

to him on the commencement of his career. My difficulty has been to condense the vast mass of materials which the judgment, the profound knowledge, and the labour of a great number of writers in different languages, have amassed, and to place it in an attractive form before the young and inexperienced. I have attempted merely to be a guide, to render the paths of elementary knowledge clear and distinct, to show what has been done, and to point out that there are still ample fields for observation. I have introduced no speculations, but a great number of facts; it has been my wish to record these with accuracy and conciseness; I have occasionally given the result of my own observation and experience, reserving, for a later period, the opportunity of furnishing to the Profession much of that which I have learnt from my personal attention. In the short intervals of leisure which are afforded to me from instruction and from practice, I have less opportunity than I once enjoyed of devoting my time to the perusal of the works of my contemporaries. I have, however, availed myself of every advantage that I possess, to benefit by them, and I hope I have been enabled to do justice to their merits when the occasion has offered itself. If this little volume should add to the means of acquiring knowledge, the object which I have in view will be amply fulfilled.

MERCURY, &c.

THE researches of science have placed within the reach of medicine some of the most deleterious poisons. They have so completely neutralised their bad effects, and extracted from them peculiar virtues, that they have enabled the observers of nature to apply to the relief of human suffering substances "that hold an enmity with blood of man." Amongst the metallic bodies found in the crust of the globe is one of most extraordinary agency; mercury, alone or in combination with other objects, may be the source of the most fearful calamities, if placed in the hands of the unskilful and ignorant; but judiciously and carefully administered, it is one of the most valuable resources of the healing art. Two of its compounds, familiarly known under the names of calomel and blue pill, have the power of arresting some of the most fearful maladies to which human nature is subject; properly managed, they are gentle in their operation, and certain to afford relief, but they may be converted into most dangerous weapons; whilst another of the preparations of mercury, commonly called corrosive sublimate, one of the

most violent and destructive poisons, can be rendered a mild and efficacious remedy. These and other compounds of mercury have been received into the *materia medica* of civilised countries, and a knowledge of their characteristics enables medical men to employ them with marked success in many diseased states.

No substance with which man has been furnished by the bountiful hand of nature, has undergone more strict scrutiny than mercury. It has been investigated with the greatest ardour, and with the fondest expectation of obtaining from it the most unbounded sources of riches and of health. The earlier alchemists tormented this metal in the most absurd and ridiculous manner; it was the unceasing object of their examinations. Not only, according to them, was gold, and every metal formed from it, but it even entered into the composition of all beings; it was one of the elements of nature, and it was even thought to be intimately connected with the soul of man. The grand object of the adepts was the fixation of mercury; this was the *summum magnum* of all their labours. Extravagant, however, as were the follies and the theories in which they indulged, we owe our knowledge of some of the most important facts in art and in science to their unwearied and indefatigable exertions. This beautiful and singularly endowed metal, with all its properties, is now familiar to us. The chemical physicians at an early period availed themselves of the knowledge which had been acquired, and, by a number of pharmaceutical preparations, obtained from it

a fresh source of power in the cure and alleviation of disease.

Previous to the rescarches of the Arabians, little appears to have been known of mercury. Dioscorides and Pliny both speak of it as well known in their time. Dioscorides, indced, furnishes us with the method pursued of obtaining it by sublimation from cinnabar. It is the first mention we have of a process which ultimately led to that of distillation. Theophrastus, too, speaks of cinnabar, but his knowledge of it was very imperfect, and, though used externally in medicine, it was deemed a virulent poison, an opinion that Pliny entertained and promulgated.

The Arabians, who seem to have applied chemical preparations to the cure of disease before any other nation, were very inquisitive as to the properties of mercury. The learned Geber, the patriarch of chemistry, who lived during the eighth century, believed all metals to be compounds of mercury and silver; but this was not his own opinion, it was that which he says he derived from the ancients. Others of the Arabians believed that mercury formed the philosopher's stone, which secured man from disease, and gave him immortality. The *Liber Trium Verborum*, which, with the book of investigation, and the will of Geber, and a work "*De Congelatione et Conglutinatione Mineralium*" of Avicenna, has been translated into Latin from the manuscript in the Vatican Library. From this, and "*De Perfectione Magisterii*," we learn that they were, at that time, acquainted with many of the

properties of mercury ; that they knew how to form corrosive sublimate, and that some imperfect knowledge of its powers had been obtained. Geber describes the affinities of this metal for the other metals, and gives a formula for making the red oxide.

To Basil Valentine has been attributed the first employment of mercury, as well as antimony ; but it was that great and extraordinary man, Paracelsus, who first taught physicians the use of chemical medicines and of chemical inquiries. This great reformer, whom it has been the fashion for the lovers of antiquity to revile and to laugh at, and whose works they have not deigned to examine, first boldly recommended mercury, and, by the loudest encomiums, drew general attention to its powers. By the successful cures effected by it, he overcame much of the prejudice against it, though singularly enough, even to this hour, there are many who entertain the most decided hostility to it, and who, indeed, without being aware of it, are using at this day the same arguments against one of the most valuable, most certain, and most efficacious remedies we possess, if properly administered, and are raising the same objections to it which the lovers of Galenical prescriptions of the older schools formerly employed. Mercury, capable of being rendered an invaluable treasure in the science of medicine, has been, and again will be, the curse of the sick, if all that belongs to it be not thoroughly known. If half the ardour evinced for it, as the element of the philosopher's stone, had been directed to it as a cure

of disease, man would not have undergone much of the misery he has had, from ignorance and credulity, to encounter.

Mercury in its pure state is fluid, and from this circumstance, together with its likeness to silver, it has obtained different names expressive of these characteristics; hence the English word quicksilver, or living silver, and the Greek name hydrargyros, or watery silver. It is the most brilliant and shining of the metals. Its divisibility has always been the subject of observation. Liebnicht, by striking a globule of mercury six lines in diameter, distributed it into such extremely minute globules, that by a microscope he could see one hundred million of them. It is of great weight, 200 being its proportional, and it is at the same time very volatile. It was supposed capable of imparting its own characteristic properties to other metals. For a long time it was imagined that it could not be rendered solid by any degree of cold, and as late as the days of Boerhaave this was asserted in his "Elements of Chemistry;" this, however, was proved to be erroneous by Professor Braun, who, on the 14th of December, 1759, availing himself of an intense degree of natural cold, augmented still further by fuming nitrous acid and pounded ice. An account of a treatise in Latin, presented to the Royal Society by William Watson, M.D., is to be found in the "Philosophical Transactions," in the fifty-second volume, describing this process. It was at an extraordinary degree of cold below zero that the academicians broke the glass bulb of the thermometer, finding the

mercury stationary; it was congealed, and formed a solid mass, possessing a certain degree of ductility. This was susceptible of being extended by the hammer; at each blow, however, the metal melted, and ran into globules, in consequence of the internal caloric becoming developed by the pressure. This result surprised the philosophers, who had generally imagined that the point of mercurial congelation must have been at least 500 degrees below the zero of Fahrenheit, and scarcely any one had ventured to imagine that it was one short of 100.

Mr. Thomas Hutchins performed a number of experiments, under the direction of the Royal Society, at Hudson's Bay, in the year 1783, by which it was ascertained that quicksilver freezes in a degree of cold not exceeding that which occurs in the northern parts of Europe, and the point now generally stated is about 40 degrees below zero. On the 7th of February, 1799, my distinguished friend Mr. Pepys, who retains the same love of science that marked his early career, assisted by some of his chemical friends, congealed fifty-six pounds of mercury into a solid mass by a mixture of muriate of lime and of uncompressed snow in equal weights. Owing to an accident this mass was broken; the larger portions remained some minutes unchanged before they melted, whilst some of the smaller fragments were capable of being twisted into various forms; but Mr. Pepys found much difficulty in handling them: and on laying hold of a large mass of the solid mercury, he experienced a sensation very similar to that which a solid instrument

inflicts, and compared it to that which is produced by a red-hot iron. He was not a little alarmed when, on examining the part of the hand which had been in contact with the metal, he found it quite white, and apparently dead, and that it had lost all sensation. From this state, however, it very soon recovered. When a similar experiment took place at the Polytechnic School in Paris, the mercury was enclosed in bulbs of thin glass, and when the congelation occurred, the individual who held the tube in his hand felt a concussion, a phenomenon which also happens when phosphorus becomes solid; a crystallisation into very small octahedrons was the result, and this Pelletier placed in the hollow of his hand; he immediately experienced pain similar to that which a burn produces, and the skin exhibited a white spot, which afterwards became red, and so continued for several days. It is the singular property mercury possesses of suddenly contracting, which is the cause of the shock that is felt. As this liquid metal does not attach itself to bodies that are wetted by water, by oil, or other liquids, the dryness of mercury has obtained much attention, but it is accounted for by the little attraction these bodies have for its surface.

Some of the characteristics of mercury are peculiarly striking. Thus, it always assumes the form of globules, perfectly round; hence its surface was long a source of error in barometrical surveys, which was obviated by Cassebois. Its power as a conductor of caloric is very remarkable. If a red-hot iron be plunged into quicksilver, it instantaneously loses

its redness, even much more quickly than when immersed in water. Its dilation by caloric is so uniform, that we are enabled to ascertain, with the utmost precision, the force of heat, and hence are enabled to construct perfect thermometers. Its volatility and extreme expansion by heat are such, that it bursts every obstacle. Two examples of this are related, one by Hellot, where a quantity was inclosed in a well-soldered globe of iron, which was thrown into a fire; but scarcely had it become red-hot when the mercury burst its receptacle with tremendous noise, and quickly flew out of sight. The other occurred in the house of the celebrated Geofroy. An alchemist, who proposed to fix mercury, enclosed a quantity in a ball of iron, which he enclosed in several other similar spheres, each larger than the other; he secured them all by very strong hoops of iron, and then threw the whole body into a furnace; but after a short time the mercury burst through all these enclosures, and hurled the fragments of iron with such force that they penetrated the walls and partitions like bomb-shells. Another marked property of the metal is its phosphorescence. As the celebrated Picard was carrying home from the observatory at Paris, during a very dark night, a barometer, he was struck with the luminous sparks that were emitted from it, owing to the shaking of the tube during the action of walking: but, strange to relate, several barometers were tried, but none of them seemed to possess the same singular power, except one that belonged to the immortal Cassini. This was in 1675: the journals of the day noticed

it; but it was forgotten until Bernouilli wrote a treatise, "*De Mercurio Lucenti in Vacuo*," and pointed out how luminous barometers might be formed. Leibnitz, Gravesande, and others, investigated the subject, and many ingenious applications were proposed, but the property was discovered not always to be constant; that it varied in hot and dry weather: it is now believed to be an electrical phenomenon, produced by the friction of the metal against glass.

There are four well-ascertained ores of mercury: native mercury; alloyed, or amalgamated, mercury; the sulphate of mercury, or cinnabar; and the red muriate of mercury; there are ores which have not been generally acknowledged as such. There are in the British Museum specimens of native mercury, as globules disseminated in cinnabar, and hydrarguret of silver, or native amalgam; a suite of specimens of sulphuret of mercury, both the dark red and bright red cinnabar, also hepatic mercurial ore, a mixture of cinnabar with bituminous and earthy particles of the chloride, or muriate of mercury. These are from Almaden, in Spain, which is the oldest mine in Europe, for it was worked by the Romans, and even to this day furnishes a large proportion of the mercury of commerce, from Friuli, from the provinces of America, and from different parts of the globe. Mercury is very often brought into the market in an adulterated state. Lead and bismuth have the power of exhibiting considerable fluidity when mixed; but the tarnished appearance, the dross and impurities on the surface, the black

colour with which it soils the bodies with which it comes into contact, the imperfect form of the globules, and the difficulty which they have of uniting when placed in contact with each other, are the criteria which indicate the impurity of the metal ; besides which, there are various processes by which the chemist arrives at certain knowledge of the fact. The means by which mercury is extracted from the bodies with which it is combined, are all founded upon distillation, but the processes are carried on in various ways, according to particular views. Antoine Jussieu has detailed that which is pursued at Almaden, in Spain, in the *Memoirs of the Academy of Science* for the year 1719. Sage has given a description of that which is employed in Bohemia. They are founded upon the same general principles, though they materially differ in the nature of the apparatus, the time required for the completion of the preparation, and the number of persons demanded to carry it into effect.

Antoine Jussieu, when he described the mines of Almaden, and the operations that were there performed in the year 1719, observed that they did not emit any exhalation deleterious to vegetable life ; that the neighbourhood and the soil above the mines were fertile, that only the convicts employed in the interior suffered from any violent disease, and this he attributes to the mercury volatilized by the fires which are constantly burning. Exposure to the vapour issuing from this metal will speedily destroy life or produce disease. Of this a most remarkable instance is detailed in an extract from a

letter from Lisbon, dated the 12th of May, 1810, and is to be found in the sixth volume of the "Edinburgh Medical and Surgical Journal," and which, the year following, was the subject of some remarks in the "London Medical and Physical Journal." In April of the year 1810, the *Triumph*, man-of-war, and the *Phipps*, schooner, saved from the wreck of a Spanish ship off Cadiz a large quantity of quicksilver. The *Triumph* took on board thirty tons, contained in leathern bags of fifty pounds each; these bags were picked up on the shore; they were saturated with sea water: they were collected and stowed below in the bread-room after-hold, and storerooms forward. In about a fortnight many of them decayed and burst, and the mercury escaped into the recesses of the ship; at this period bilge-water had collected, the stench of which was considerable, and the carpenter's mate, in the act of sounding the well, was nearly suffocated; the common effect of the escape of the bilge-water is to change, from the escape of the gas, every metallic substance in the ship to a black colour, but on this occasion every metal was coated with quicksilver; an alarming illness broke out amongst the crew, all of whom were more or less salivated. The surgeons, pursers, and three petty officers, who were nearest the place where it was stowed, felt the effects the most, their heads and tongues having swollen to an alarming degree. The *Triumph* was sent to Gibraltar to be cleared, and the people were placed in the hospital. The quantity on board the *Phipps* was not so great, but she was sent to Lisbon to be

cleared by boring a hole in her bottom to allow the quicksilver to run out. Every rat, mouse, and cock-roach on board was destroyed, and the symptoms of general salivation appeared in a strong degree. Some attributed the effluvia to the bags having been acted upon by the sea-water, and Dr. George Pearson attempted to explain the phenomena, but not satisfactorily. Of the truth of the statement Dr. Baird and three surgeons bear sufficient testimony.

Of its effects upon miners we may likewise judge by a narrative that is given by Dr. John Wilkins in the "Philosophical Transactions," in the year 1666, in which he describes the quicksilver mines at Friuli, in the Venetian territory. He says, that although none of the miners stay under ground above six hours, all of them die hectic, or become paralytic. He saw there a man, who had not been in the mines for above half a year before, so full of mercury, that on putting a piece of brass in his mouth, or rubbing it between his fingers, it immediately became white like silver, and precisely in the same state as if mercury had been rubbed upon it; and so paralytic was the unfortunate man, that he could not, with both his hands, carry a glass half full of wine to his mouth without spilling it, though the doctor quaintly adds, he loved the wine too well to throw it away. It appears that both the shaking palsy and salivation are the consequences of the exposure to the vapour, or to the metal in its usual state, but that those who are liable to the one are not so to the other,

but the same exposure may cause salivation in one individual, and palsy in another. Of this Dr. Christison furnishes us with an illustration which he learnt from his friend Mr. Hardinger, the mineralogist. A barometer-maker, and one of his men, were exposed one night, during sleep, to the vapours of mercury, from a pot on a stove in which a fire had been accidentally kindled; they were both most severely affected, the latter with salivation, which caused the loss of his teeth, the former with shaking palsy, which lasted all his life. Dr. Falconer, of Bath, gives us an account of the effects produced by the application of this metal, in the form of a girdle worn round the waist, especially by females of the lower order, for the cure of the itch, as being a cleaner proceeding, and more free from fœtor than ointments composed of sulphur. Many cases were admitted into the Bath Hospital, and the symptoms which were exhibited were a degree of general weakness approaching to palsy, great pain and tremor in the limbs, and often violent headaches. It is worth remarking that an instance lately occurred in the Bath Hospital, where all the symptoms that distinguish the poison of lead were observed, even the loss of tone in the muscles of the wrist, in consequence of the use of mercurial ointment for the cure of the itch.

Merat, in the appendix to his "Treatise on Metallic Colic," has described very admirably the "tremblement metallique;" and Dr. Bateman, in his history of the disease to which mirror-silverers

are subject, has also painted it remarkably well. The attack is sometimes sudden, at others gradual: it begins with unsteadiness and shaking of the arms and limbs, which prevent walking, speaking, or masticating; the tremors become frequent, nay, almost constant; every action is performed by starts; if the occupation which produced it be continued, sleeplessness, loss of memory, and death, terminate the scene; a peculiar brownish hue of the whole body, and dry skin, generally accompany the disease. In its first attack it may be taken for St. Vitus' dance, in its later stages for delirium tremens. Wherever mercury is employed in the arts or manufactures, great attention is necessary to cleanliness, by which means these bad consequences may be avoided.

Quicksilver has been employed to some extent in this country, in its crude state, as a remedial agent. It appears that in the days of Charles the Second it was much in use. Amongst the old writers, whose quaint and curious volumes serve to enliven the research into medical literature, are Dr. Daniel Turner's "Treatise on Diseases of the Skin, and the Ancient Physicians' Legacy impartially Surveyed." The Doctor is one of those agreeable gossips who retails every anecdote that comes in his way. He discusses learnedly all subjects. He is earnest upon every point, from the Arabian leprosy to the red nose of Queen Anne, that can be called cutaneous; and upon quicksilver he is more than usually facetious; he thus says—"In King Charles the Second's reign, I very well remem-

ber, though it is above fifty years past, a physician, knighted by that prince, whose name I can sometimes recollect, though not at this moment, encouraged it much, who lived retired somewhere about Edmonton, and where the villagers round coming to consult him, especially on their children's diseases, he advised a thimbleful of quicksilver to be given them every morning for a month: and when careful to observe them in their needings, they would oftentimes recover the same, which being washed served for the next dose." That this curious advice for obtaining the quicksilver, after passing through the intestines, and again employing it, was not unusual, we learn from the tradition that has been handed down to us. The beauties of the court of King Charles the Second used the crude mercury as an alterative; and it was common, morning and evening, to take a teaspoonful, to beautify the complexion, to remove a freckle, or to give a pearly lustre to the skin. It was not unusual to find globules of quicksilver scattered about after a dance; and it is said that the sweepings of the withdrawing-room were amongst the profitable perquisites of the fair abigail, who, the following morning, re-administered to the ladies the second-hand mercury thus collected, again to pass through the delicate frames of those celebrated beauties whom the pencil of Sir Peter Lely and the pen of Grammont have handed down to posterity.

Dr. Turner says, "I have heard a pleasant story of a mercurial lady, who, in dancing at a pub-

lic assembly, happened to let go some particles of the quicksilver she had taken in the morning, which shining on the floor, in the midst of so great an illumination, like so many brilliants, there were several stooping down to take them up, but finding themselves deceived, it afforded matter for much laughter among the gentlemen, and blushing among the ladies, especially she that was much concerned ; for the cry went through the room that some lady had scattered her diamonds."

There are many laughable tales of the rapidity with which quicksilver comes away after it has been swallowed, narrated by Daniel Turner ; for, in his day, Dr. Dover had attempted to introduce the practice of administering it in enormous doses. Mr. Bradley gives us the history of the case of an old gentleman who took an ounce of quicksilver for nine months, daily, without doing him either good or harm ; and out of sixteen pounds he had taken in the whole, on washing it from the fæces, when it was weighed, there wanted only one ounce and a half, which he thinks was lost in the washing. Dr. Turner, in his comments upon the case, observes—"that this old gentleman (for he was upwards of threescore) must have been stronger in the sphincter than many much younger persons I have met with, some of whom acquaint me it comes away in spite of their teeth ;" and he then proceeds to give some laughable narratives. Crude quicksilver thus taken has produced salivation, ulceration of the gums, and likewise tremors.

The controversy between the admirers of Dr.

Dover's practice, and his opponents, who stigmatised him as an impudent quack, was carried on with all that acrimony and venom which so frequently have disfigured medical writings; and at last the public mind was satisfied that the frightful doses of this metal were destructive, but not before some tragical events had occurred. Dr. Dover had very strongly recommended mercury in a treatise which he wrote on fever. Amongst those who read his work was one of the most celebrated actors of this country, Barton Booth, who has left behind him a reputation of the highest class, as one of the most accomplished tragedians of his age; he had just recovered from an intermittent fever, by the use of cinchona; it had completely left him for ten or twelve days, but, apprehensive of its return, he sent for Dr. Dover, who encouraged him to take the crude mercury, assuring him that it would not only prevent the return of his fever, but effectually cure him of all his complaints. On the following day, May 3rd, he began the course, and by May the 8th, he had taken two pounds, except two ounces; he then complained of pain in his head and bowels, a universal uneasiness of his body, so that he could not remain one moment in the same posture. The following day Sir Hans Sloane was called in; nine ounces of blood were taken from him; purgatives and enemas were administered the two following days, but the bowels would not act, nor could the costiveness be in any way relieved, and in the course of the second day he died. It appeared that before the 8th about half a pound

weight of the metal had been passed, but after that day none had been discharged. The body was opened in the presence of Sir Hans Sloane; a gall-stone was found in the ductus choledochus, which choked up the passage, but the other parts were sound, until the lower intestines were examined. The rectum, which was so "rotten that it broke like tinder," and gave forth a most offensive cadaverous stench, as did the other intestines, was ripped open with a pair of scissors: the whole track on the inside was lined with crude mercury divided in globules, about the bigness of pin's heads, and they were perfectly black. Mr. Booth had long laboured under an obstinate jaundice, for which he had tried many remedies: rhubarb, of which he daily chewed about three drachms, and which procured him eighteen or twenty stools a day, had afforded him great relief; but this attack, together with an intermittent fever, had come on about a month before his death. The termination of this case made a great impression on the public mind, and banished from general practice such an abuse of what is a valuable remedy if well administered.

But it has been denied that mercury, in its fluid state, can produce any effect whatever, excepting by its mechanical action. The death of Barton Booth, and of others, has been ascribed to the obstruction produced by quantity, and instances have been adduced where large portions have been swallowed with impunity. The Arabian physicians administered it in *introsusceptio* in very large doses. Fallopius and Brassavolus gave it in worms; and the

former author states, that he has known women, anxious for a miscarriage, who swallowed whole pounds of it, without finding any mischievous consequence. There is a story recorded of one of the princes of the House of Brandenburg, who, on the first night of marriage, rising from the nuptial-couch to quench the thirst occasioned by love and wine, drank a large quantity of fluid mercury, but suffered from his draught no harm. The College of Physicians at Berlin has given a report upon this subject, which tends to prove that crude quicksilver is not poisonous; but the authority of Dr. Mead must not be passed over. He says,—“Experience has convinced us that repeated doses of crude mercury have, in some cases, even a considerable time after they have been taken, exerted their full force, and thrown the body into unexpected disorders. I remember two accidents of this kind, and one of them proved fatal, in which, when a small quantity had been given for many days together, a violent salivation ensued more than two months after the use of it had been left off.” He likewise tells us, that he saw a young lady who, having swallowed about six drachms every morning, three successive days, was salivated three weeks; “the flux then ceased, but returned after six months, and held a month, and once more came on, in the same manner, two months after; the breath was, at each time, strongly affected, as is usual in mercurial spittings.”

When mercury was introduced into medical practice, ointments and plasters were first made use

of, and its internal exhibition was subsequently recommended. To Jacobus Berengarius, commonly called Carpus, has been generally ascribed the first employment of mercurial ointment. Haller, however, says, "Non quidem inventor unguentorum mercurialium, sed laudator." An ointment, composed of grease and mercury, was made use of by him very largely at the siege of Naples, which has been considered as the point from which the syphilitic diseases were disseminated over the whole of Europe. The question as to the origin of this disease is intimately blended with the history of the introduction of this remedy, which was so long considered the only one adapted for its cure. Whether the infection was brought to Naples by the followers of Columbus from the West Indies, or whether it arose in Europe, is a question which still remains *sub judice*. Astruc, who inquired with greater zeal into the subject than any other investigator, has adduced a variety of authorities and arguments to prove that it was an importation from the New World. The rapidity with which the calamity spread over Europe, on the return of the French army from Naples, to which it had marched in a high state of health and of discipline, the concurrent testimony, that previous to that period there had been no such disease so prevalent as to have excited general attention, seem to justify the assertion, "that during the siege, the provisions growing scarce, the ladies of pleasure were turned out of the city, and then had no other resource than their enemies' generosity, who, according to

their usual politeness, received them, and all their pestilential favours, with open arms." Amongst the medical officers attached to the army, and one in whom the officers placed the utmost reliance, was Berengarius Carpus, and he obtained the highest reputation for the cures he effected by means of the unguentum Neapolitanum. Dr. Mead, who paid considerable attention to the authors who wrote in his time, and who consulted the medical authorities now very difficult to procure, and was an admirer of the works of Montana, Fallopius, and Nicolaus Massa, tells us, that the prejudices and outcries against mercury arose from its effects as "unguents and emplasters;" and that the Arabians, having recommended mercurial ointments in lepra, "gave a handle to the Italian physicians to try their efficacy in removing the foulness of the skin from a new and terrible contagion; neither were they sparing of their liniments, which they continued to rub in for twelve, fifteen, nay, sometimes for thirty days together." The plan of treatment adopted by Berengarius Carpus was to obtain, as speedily as possible, the admission of mercury into the system by friction, and by anointing the whole surface of the body. He generally succeeded in overcoming the disease in the strong and robust persons who submitted to his discipline; but the weaker and more delicate frames could not undergo it, and many of those who were decidedly cured by it were left in a state of great debility, and their constitutions so predisposed to the influence of morbid action, that, upon the slightest attack, they

fell victims to premature death, or were rendered feeble and miserable for the remaining period of their existence.

For some time, therefore, mercurial inunction was abandoned, and mercurial fumigation was substituted. This was effected by placing the patient naked near a large fire, into which was thrown a certain quantity of cinnabar, or sulphuret of mercury; the vapour produced its effects upon the skin, but so many inconveniences attended this plan, and in many instances it was found so prejudicial to the lungs, that it likewise fell into disuse; but the mercurial ointment again found favour in the eyes of some of the faculty practising at Montpellier, at that time the fashionable resort of the sick and suffering. Didier and Chicoyneau obtained there a very high reputation, by the employment of the mercurial unction, but in a much milder way than had been previously adopted. They placed, too, the patient before the fire, in order to assist absorption, and then directed that a small proportion of the ointment, now called mercurial or blue ointment, should be diligently rubbed by the individual himself between the thighs: this process was repeated every evening until salivation was produced. Dr. Cantwell and Astruc, who had opportunities of witnessing the cures thus effected, travelled over various parts of the Continent, recommending what they called the "Montpellier treatment." It was by them introduced into England, and very speedily became the usual mode employed for the cure of the syphilitic diseases. The opinion of John

Hunter gave the external treatment a higher degree of character, fifty years ago, than it at present maintains. He says, "When it can be thrown into the constitution with propriety by the external method, it is preferable to the internal, because the skin is not nearly so essential to life as the stomach, and therefore is capable, in itself, of bearing much more than the stomach; it also affects the constitution much less. Many courses of mercury, which are absolutely necessary, would kill the patient if taken by the stomach, proving hurtful both to the stomach and to the intestines, even when given in any form, and joined with the greatest correctors; on the other hand, the way of life will often not allow it to be applied externally."

It has been thought that it is not the crude mercury which is absorbed, but that it is the oxide formed during the trituration with the fatty matter, that produces any effect; and Mr. Donovan has, in the "*Annals of Philosophy*," expressed his opinion that the oxide is the only active ingredient.

There can be no doubt that quicksilver is rapidly absorbed, and that it is to be found in the fluids and in the solids, both during life and after death. It was stated at the *Westminster Medical Society*, that a lady who was undergoing a mercurial course by inunction was obliged to have a blister applied to the chest, and on making an aperture for the escape of the usual fluid, a number of globules of quicksilver appeared. In the "*German Ephemerides*" is a very staggering assertion, that upon opening the vein of an individual undergoing a mercurial course, some drachms

of it flowed out with the blood. Zeller, who wrote a thesis detailing experiments made with mercury upon living animals, has given several instances of its appearance in the secretions; Schenklius met with a case where a spoonful was vomited up; Rhodius remarked an instance of its passing with the urine; and Hochstetter, with the perspiration. In "Corvisart's Journal" appears a case related by Dr. Jourdan, where fluid mercury was passed with the urine; Fourcroy speaks of an instance where a gilder had a number of pustules on the surface of the body, and each of them was found to contain a globule of mercury; after death Mead saw in the perineum of a subject taken from the gallows for dissection, "whose rotten bones discovered what disease had required the use of it, and that I suppose by unction, a quantity of it without any marks of corrosion of the part where it was collected." It is said that no less than a pound has been found in the brain, and two ounces in the skull-cap of a person who had been salivated. In the Lubben Cabinet of Midwifery there is preserved a pelvis infiltrated with mercury, taken from a young woman who had died of syphilis. Dr. Christison has collected many instances of this kind; amongst these is one supplied by Dr. Otto, who, on scraping the bones of a man who had laboured under syphilis, remarked minute globules issuing from the osseous substance; in some places globules were deposited between the bone and the periosteum, where the latter had been detached in the progress of putrefaction, and in other places; when the bones

were struck a shower of fine globules fell from them. Many churchyards of former days exhibit similar facts. It is not at all uncommon to find the skull-cap more particularly the seat of quicksilver, which insinuates its globules in a most extraordinary way into the texture of the bones. Experiments upon living animals have been tried, which prove the absorption of mercury into the system; those of Dr. Schubarth are the most satisfactory; amongst these, a horse was, for twenty-nine days, anointed with mercurial ointment; eighty ounces were rubbed in; after fever, emaciation, diarrhœa, and salivation, he died. A quart of blood was taken from the jugular vein on the sixteenth day, another quart was procured from the great vessels after death; in each quantity of blood a liquor was obtained by destructive distillation, in which minute globules were visible; these were so very minute, that they account for their having passed unobserved by Klaproth, Bergman, Rhades, Meissner, and Schweigger, under similar circumstances.

Mercury unites with oxygen in two proportions, and the preparations that are the result have admission into the Pharmacopœia, under the names of Hydrargyri Oxidum and Hydrargyri Binoxidum. The first of these is obtained from an ounce of the chloride of mercury and a gallon of lime water. Mix and frequently shake them. Set by, and when the oxide has subsided, pour off the liquor; lastly, wash it in distilled water, until nothing alkaline can be perceived, and dry it in the air, wrapped in bibulous paper. Thus the chlorine of the chloride

enters into combination with the calcium of the lime, and chloride of calcium is obtained, which remains in solution, and is abstracted in the pouring off of the liquor. The oxide of the lime entering into union with the mercury forms the precipitated oxide of mercury. Digested for a short time with diluted hydrochloric acid, and strained, neither solution of potash nor oxalate of ammonia throws down any precipitate. It is totally soluble in acetic acid, by heat it is entirely dissipated. It ought to be nearly black; it is almost insoluble in water, but soluble in the acids, forming a peculiar class of salts.

Mercury in this slightly oxydized state was known to Aristotle, who states that, on mixing this metal for a long time with the saliva, a useful remedy is obtained in the cure of some of the diseases of the skin; but in modern times it was Boerhaave who drew attention to it. He observed that whether we rub the mercury with the hand, agitate it in the air, shake it in a bottle, or triturate it with any thick viscid liquid, that it is converted into a black oxide, which is again restored to the state of fluid quicksilver by the action of fire, and even of light: this powder, from its colour, he called *Æthiops per se*.

The complete oxidation of mercury is the result of a process described by the older alchemists; it was well known to Boyle, and he invented a particular apparatus, which was long known under the name of Boyle's Hell, in which it was said he tormented the metal. This oxide of mercury contains

nearly a tenth part of its weight of oxygen, and it was from this that Dr. Priestley first obtained oxygen in its pure state in the year 1744 ; and upon the investigation of its properties was laid the foundation of the doctrine of the gases now so universally acknowledged to be the great source of the discoveries of modern chemistry. It is the Hydrargyri Oxydum rubrum of the last Pharmacopœia, and the formula as at present laid down is, Take of bichloride of mercury four ounces, solution of potash twenty-eight fluid ounces, distilled water six pints ; dissolve the bichloride in the water, strain and add the solution of potash, wash the powder thrown down in distilled water until nothing alkaline can be perceived, and dry it with a gentle heat. On the mixture of the bichloride with the solution of potash, decomposition occurs, the two parts of chloride which exist in the bichloride, take two of potassium ; hence two parts of chloride of potassium remain in solution, whilst the two parts of oxygen combine with one part of mercury, and this is precipitated, forming an orange red powder : if this be heated in open vessels it sublimes, and the result is a transparent vitriform substance, of a singularly beautiful ruby red colour ; if heat be applied, it yields oxygen, and the mercury either runs into globules, or is entirely dissipated. It is completely soluble in hydrochloric acid. It is very acid to the taste, has no odour. Boerhaave tried many experiments with the red oxide of mercury, and the greater part of our knowledge as to its chemical characteristics is

owing to his labours. Neither of these salts have acquired much reputation in the cure of disease. The oxide is given in the form of pills in the dose of a grain; the binoxide is very active, it excites vomiting and purging, but it ought rather to be considered as a poison than a medicine, for its effects as the latter are very uncertain, whilst its deleterious powers are most decided. Neither of these salts have ever been the subject of any very peculiar inquiry by medical men, with the exception of the learned Boerhaave.

There is another preparation in the Pharmacopœia very rarely employed internally, in which the mercury is in the state of binoxide, containing also a little nitrate. It is called Hydrargyri Nitrico-Oxydum, and was formerly known by the name of Red Nitrate, and Red Corrosive Mercury; it is thus formed: Take of mercury three pounds, nitric acid a pound and a half, distilled water two pints. Mix them in a proper vessel, and apply a gentle heat until the mercury be dissolved. Boil down the liquor, and rub what remains to powder. Put this into another very shallow vessel, then apply a slow fire, and gradually increase it until red vapours arise. This preparation is of a bright red colour; it resembles in most points the binoxide; on the application of heat no vapour is evolved; neither lime water nor hydrosulphuric acid throws down anything from the water in which it has been boiled. The ammonio-chloride of mercury was formerly called the white precipitate, and occasionally used as a remedy externally in cutaneous disease.

It is formed of six ounces of bichloride of mercury, distilled water six pints, solution of ammonia eight fluid ounces. Dissolve the bichloride of mercury with the application of heat in the water; to this, when it is cold, add the solution of ammonia, frequently stirring; wash the powder thrown down till it is free from taste; lastly, dry it. This preparation is completely evaporated by heat; when digested with acetic acid, iodide of potassium throws down nothing either yellow or blue. It is totally dissolved by hydrochloric acid without effervescence; when heated with solution, it becomes yellow, and emits ammonia. There are different theories as to the composition of this salt.

Mercury very readily enters into union with sulphur, both by simple trituration and by the action of heat. The first operation performed was the rubbing together of the liquid metal, and two parts of sulphur, which was called, from the black colour that was assumed, the *Æthiop mineral*. A salt called the *hydrargyri sulphuretum cum sulphure*, and formerly *hydrargyri sulphuretum nigrum*, has now a place amongst our medicines, and is directed to be made of equal parts of sulphur and of quicksilver, which are to be rubbed together until globules no longer appear. It is not only a simple mixture that is the result of this trituration, but the sulphur actually combines and adheres to the mercury, and separation cannot take place but by chemical means; still, however, a strong magnifying glass enables us to see oblong globules of mercury. This is a very black insipid powder, which diffuses a fetid smell; it whitens gold when rubbed upon it,

and totally evaporates by heat ; at one time it was commended as a powerful cutaneous medicine, and in the dose of half a scruple was administered ; it has, however, fallen into disuse.

The black sulphuret by fire, or the *Æthiop mineral* by fusion, was variously prepared by the alchemists, but most of their processes were susceptible of detonation, and therefore accidents very often occurred in the laboratory. Bayen, indeed, has shown that the oxides of mercury fulminate by a small quantity of sulphur when heated together strongly.

The bisulphuret of mercury is the artificial cinnabar of chemical authors—the red sulphuret of mercury of the former *Pharmacopœia*. Great difference of opinion has existed as to the relative proportions of the principles ; and as this salt is in great request in the arts, on account rather of its beautiful colour than of its medicinal virtues, great attention has been paid to its manufactories. In *Crell's Journal*, and in the *French Annals of Chemistry*, is much curious matter upon its proper fabrication. It is directed to be made of two pounds of mercury, five ounces of sulphur—mix the mercury with the sulphur melted over the fire, and as soon as the mass swells, remove the vessel from the fire, and cover it strongly, lest inflammation should occur ; then rub to powder, and sublime. In the first part of the process, combination takes place between the mercury and a portion of the sulphur ; by continuing the heat, the excess of the sulphur is diminished ; and upon sublimation

this salt is obtained in a mass of a dark or dull brick colour ; but when it is powdered, a beautiful vermilion is produced, which is unalterable by the air ; but several of the metals possess the power of separating the mercury. It is used in mercurial fumigations, heat being applied.

A medicine of very great utility is formed by the union of mercury with chalk ; by triturating together three ounces of the metal and five ounces of prepared chalk, until globules are no longer visible, a mild mercurial preparation is obtained, which was formerly known by the name of alkalized mercury. There are three other formulæ in the last edition of the English Pharmacopœia,—the bicyanide of mercury, which is composed of two equivalents of cyanogen and one of mercury ; the iodide, composed of one equivalent of iodine and one of the metal ; and the biniodide, formed of two equivalents of the iodine and one of mercury ; but these are scarcely known as mercurial preparations, but are generally discussed when the properties of iodine become the subject of consideration.

Besides these preparations, there are a vast number of others, which have been at various times highly extolled by medical men ; we find the milk of mercury, the mercury of life, the mercurial tincture, and a long catalogue of recipes collected by Swediaur, and other writers who have availed themselves of the knowledge of the older alchemists. The Pharmacopœia Syphilitica of Swediaur contains a methodical table of these remedies.

The chemists, and amongst them Fourcroy, con-

sidered mercury only as medicinal from its being an oxyphorous substance—that is, a substance which possesses the power of imparting to the animal economy, oxygen; and they believed that the good effect that was derived in the cure of disease solely depended upon the superior power of the different preparations according to the quantity of the aerial fluid each contained, and they divided them into four classes. In the first, those were enumerated which were in the least state of oxidation, such as the oxide of mercury, which was prepared by various processes, by the addition of mucilage, or syrup, or by the saliva. In the second class were those salts which have but sparing solubility, such as the chloride or calomel, and are but little oxidated. In the third were the oxides of mercury, which were in union with sulphur, and whose action is but very slight, and only when they are in the form of vapour. The fourth class was composed of those mercurial remedies which are more highly charged with oxygen, either alone or in combination with other acids; amongst these the nitric oxide and the bichloride were ranked, and to this class the general name of oxygenated caustics was applied. But this theory did not long maintain its ground, and various have been the speculations which have been entertained as to the peculiar mode of operation of the different salts, which, although they have all certain properties which belong to them as a family, differ most materially each from the other in the intensity, the duration, and the celerity of their action.

There are marked characteristics which peculiarly distinguish them from the salts of all other metals: among the most striking are the effects upon the salivary glands, their power over the syphilitic disease, and likewise their contamination of the human economy, so as to produce affections which bear a very striking resemblance to the symptoms which the metal has the power of curing. No substance with which we are acquainted has such a diversified operation upon the animal economy; its effects are so various, it influences so many organs, the phenomena it excites are so remarkable, that we cannot feel surprised that so much has been written upon it, and that there exist so many opinions, which, though not decidedly at variance with each other, often clash, and render a thorough elucidation of all the circumstances connected with it a matter of very great difficulty.

The *hydrargyri bichloridum* is the *hydrargyri oxymurias*, the *hydrargyri muriatus*, the *mercurius corrosivus sublimatus*, the *deuto-chloridum* of different pharmacopœias, and the *corrosive sublimate* of the old English dispensatories, and is composed of two equivalents of chlorine and one of mercury. *Hydrargyri chloridum* of the present Pharmacopœia is the *submurias hydrargyri*, the *murias hydrargyri nitis*, the *mercurius dulcis sublimatus*, the *calomelas*, the *protochloridum hydrargyri* of other Pharmacopœias, and the well-known *calomel* in common acceptation; it is composed of one equivalent of mercury, and one equivalent of chlorine. Nothing can be more injudicious than the great num-

ber of alterations which have taken place in the nomenclature of chemistry, and no salts have undergone such a variety of names as these have done, to the great inconvenience of medical science, and to the detriment of society. Professor Brande has very properly observed,—“It is very inconvenient to alter pharmaceutical terms, according to the changes in chemical nomenclature; and as physicians in practice have not come to accord on this particular, I can see no objection to the term calomel for one substance, and corrosive sublimate for the other, pharmaceutically speaking.” It is a subject of great regret that the attempt should be made, because it can never be successful; for some chemists call calomel *protochloride*, others *chloride*, and some denominate sublimate, *perchloride*, others *deutochloride*, and others again,—as does the Royal College of Physicians,—*bichloride*. Notwithstanding the increased intelligence of those who make up medicines, mistakes are made. In Paris, a physician prescribed four grains of the protochloride for three children, the eldest of whom was seven years of age; the apprentice committed the fatal error of using corrosive sublimate, the consequence of which was, the unhappy father was in one day rendered childless. The young man, who was thus the instrument of death, was sentenced to a month’s imprisonment, and condemned to pay 2000 francs to the father. Nor did the master of the youth escape punishment, for he was ordered to pay the same sum to the father, and likewise a penalty of fifty francs for not keeping

a poison under lock and key. But, in Brussels, a still more extraordinary circumstance took place. Dr. Seutes, a physician of very high character and long standing, prescribed for the child of a friend in this manner :—*Muriat. hydrargyri*, gr. iij. The apothecary, on whom Dr. Seutes called, made up a packet containing three grains of corrosive sublimate, and he himself placed it in the hands of the doctor, making no observation. The latter gentleman mixed the powder with syrup, and gave it to the child, whose death it produced, with all the symptoms usually attendant upon this poison. The family prosecuted the physician, but the court at Brussels declared that there was no cause for proceedings. On the appeal, however, of the Attorney-General, the affair was referred to another tribunal, and M. De Fontenelle, of Paris, was appointed to decide what is the *urias hydrargyri*. In some of the older dispensatories, calomel was called the mild muriate, in contradistinction to the corrosive. It was expressed *hydrargyrum muriatum mitius*, whilst the corrosive sublimate was called *hydrargyrum muriatum*.

The alchemists, in their vain attempts to discover the philosopher's stone, made various experiments with the spirit of sea-salt, the hydrochloric acid of the present day, upon mercury, and they discovered and gave descriptions of the two preparations upon which pharmacologists have since made their various experiments. Bergman examined them with great minuteness, but he arrived at no sound conclusions; he neither ascertained their chemical

constitution, nor did he comprehend the difference between them. It is to the French chemist Berthollet we are indebted for the knowledge we possess of their distinctive characters, and the state of combination of the acid and the metal; it is upon the oxide of the metal, and not upon the mercury itself, that the acid exerts its power.

Various have been the processes for forming these two salts. Bergman has described a great number. The present formula of the Pharmacopœia is founded upon the old process of Kunckel, which was revived by Boulduc, and is said to afford the purest bichloride of mercury. It is thus given: Take of mercury two pounds, sulphuric acid three pounds, chloride of sodium a pound and a half; boil the mercury with the sulphuric acid in a proper vessel, until the bipersulphate of mercury remains dry; rub this, when it is cold, with the chloride of sodium in an earthen mortar; then sublime with a heat gradually raised. In this instance, after the sublimation of the bichloride of mercury, pure sulphate of soda remains only at the bottom. Fourcroy has pointed out other preparations, such as the one from the mixture of equal parts of sulphate of iron and chloride of sodium, acted upon by violent heat, which is still followed in the large manufactories of Holland; another, which is very quickly performed, and does not expose the persons employed to the danger from vapour, is the pouring hydrochloric acid upon a nitric solution of the metal, and evaporating the liquor; the acid of the nitre disengages itself in the form

of vapour, and the liquid, when cooled, deposits regular and pure crystals of corrosive sublimate. These are in form of a number of needles lying close to each other, appearing to be tetrahedral and compressed. There seem to be various shaped crystals obtained; but Mr. Phillips says the cleavages in the crystals of this substance are parallel to the lateral and to the terminal planes of a right rhombic prism of 93 deg. 44 min., which, therefore, may be regarded as the primary form. Physicians and chemists have compared the terminal points to the beards of feathers and to sword blades, and explained the effects of corrosive sublimate upon the animal economy by their mechanical action; and Dr. Mead thus gives his theory:—

“These crystals are to be considered as so many sharp knives or daggers, wounding and stabbing the tender coats of the stomach, and abrading their natural mucus, and irritating their nervous liquor, upon which convulsions and vomitings, with excessive pain, must follow, and the blood-vessels being at the same time parched, all the adjacent parts will be inflamed.” Corrosive sublimate liquefies by heat, and has considerable volatility, from which circumstance, and from its corroding power, it received its name. It is completely soluble in water and in sulphuric æther.—

The notes of the Pharmacopœia observe, “that whatever is thrown down from water, either by solution of potash or lime water, is of a reddish colour; or, if a sufficient quantity be added, it is yellow: this yellow substance, by heat, emits oxy-

gen; and runs into globules of mercury. Its composition is not changed by the action of the air, but it loses upon exposure some degree of its transparency, becomes white, opaque, and pulverulent. If placed upon the tongue, it has a styptic, strong, and even horrible taste, leaving for some time a most disagreeable sensation in the mouth. If this be propagated to the fauces and larynx, there is a strangulating sensation which remains for a considerable length of time; so that no one could swallow it in any form capable of irritating the stomach, without being aware of it; hence an attempt to poison by it must at all times be known.

The immediate sensation thus conveyed has, indeed, upon more than one occasion, prevented fatal consequences, and this was the case with the celebrated chemist Thenard, who, whilst delivering his lecture, inadvertently swallowed a small quantity of a solution which he mistook for water contained in a similar glass, from which he was in the habit of refreshing his mouth. He immediately perceived his error, and as it was a concentrated solution of corrosive sublimate, great alarm was excited; but as the discovery of Orfila had been recently made of the power of white of eggs as an antidote, he immediately procured some, and was fortunate enough by such means to escape injury. A similar case is recorded where a gentleman, by mistake, drank a portion of an alcoholic solution of the mineral, but was so alarmed at the taste that he did not finish it. He was, however, seized with a sense of tightness in the throat, burning at the stomach, and

purging. Orfila saw him two hours afterwards, when the symptoms had acquired the greatest severity; they were, however, mitigated, and the patient ultimately saved by the administration of the white of egg, which converts the corrosive sublimate into calomel. Peschier states, that the white of one egg will render no less than four grains of corrosive sublimate innocuous. The action upon the stomach and intestines of this violent poison is of the most distressing and agonising character, and hence this warning of danger becomes of the greatest consequence. The sensations in the throat and gullet, and the constriction, are almost diagnostic symptoms, and they sometimes continue throughout the stages, whilst mortification of the throat has been known to be the principal injury sustained, where attempts have been made vainly to swallow this salt in its solid state. The intestinal canal exhibits, after death, the ravages that have been committed; it is corroded, rendered sphacelous, and parts which have been touched by it fall off in gangrenous sloughs. The older chemists, who were fully acquainted with the terrible effects of this preparation, ascribed, without reason, its power to the presence of the hydrochloric acid.

The usual dose which practitioners employ is at first the eighth of a grain, this has been increased to a quarter of a grain; which is generally given in the form of a pill made with crumb of bread; it is likewise given in solution, and there is in the Pharmacopœia a solution of bichloride of

mercury, the liquor hydrargyri bichloridi, which is composed of ten grains of the bichloride, and a similar quantity of hydrochlorate of ammonia dissolved in a pint of distilled water, so that each ounce contains half a grain of the salt; in the former directions spirit was ordered to be added, but the muriate or hydrochlorate of ammonia is now preferred for increasing the solvent power of the fluid; the dose of this is from half a drachm to two drachms. Some people are so exceedingly sensitive, that a very minute quantity of this preparation will produce the most alarming symptoms; it therefore demands very great care and attention in prescribing it. Three grains of corrosive sublimate, divided into three doses; and taken at long intervals, have been the cause of profuse salivation; at the same time recovery has taken place from actual poisoning, where enormous doses have been taken. It is recorded that as much as half an ounce was swallowed, that both bloody vomiting and purging ensued, but that the individual escaped with life. The very extraordinary property possessed by the bichloride of mercury of entering into union with liquid mercury was very early known to the alchemists; but the preparation which is the result, under the name of *chloride of mercury* or *calomel*, was not known, as it has been stated, to Paracelsus, although it has been called his laudanum. There were two laudanums called after that extraordinary man; one was red oxide of mercury; the other was composed of chloride of antimony and other ingredients: the recipe is extant. Which of the two was the one that

had obtained the great reputation I know not, but its character was owing to a cure effected by him, and loudly spoken of throughout Europe. Albertus Basa, physician to the King of Poland, consulted Paracelsus, when he was professor at the *University of Basle*, upon the case of a patient. The professor went to his bed-side, and found him in the last stage of exhaustion; the Polish physician had declared it impossible to keep him many hours alive. Paracelsus gave the dying man three drops of his laudanum, and invited him to dine the following day, to the great astonishment of the persons surrounding him. The invitation was accepted, and the patient actually dined with the professor. The preparation of the mild muriate, or chloride of mercury, was kept a profound secret. Oswald Crollius, a Rosicrucian of great enthusiasm, boasts, in his "*Basilica Chemica*," that he can keep the secret concealed. Angelus Sala seems to have been acquainted, however, with it, and speaks even of its medical properties. In 1608, Beguin, in his "*Tyrocinium Chemicum*," describes it with great accuracy, and calls it *draco mitigatus*. It appears to have obtained a vast variety of names; it is said to have been called calomel, from the Greek word signifying handsome black, as it was prepared by a black slave of singular beauty; it was also named "*draco mitigatus*," "*aquila mitigata*," from the mildness which it was supposed to communicate to corrosive sublimate the *draco ferox*. It was also known under the names of "*manna metallorum panacea*," and "*panchymagoga quercetani*."

When mercury is triturated with the bichloride of mercury, the liquid mercury quickly disappears; the salt that is the result of the operation assumes a blackish-gray colour; if sublimation take place more than once, a chloride of mercury, with the metal at a minimum of oxidation, is obtained. Sometimes the number of these sublimations was very great; our Pharmacopœias ordered two, but other processes have been substituted, for this trituration and sublimation were tedious operations, and were attended with very many inconveniences, more particularly from an acrid dust to which the workmen were exposed, notwithstanding every precaution was used by placing different kinds of veils over the face: and our present Pharmacopœia directs the following process:—Take of mercury four pounds, sulphuric acid three pounds, chloride of sodium a pound and a half, distilled water as much as may be sufficient; boil two pounds of the mercury with the sulphuric acid in a proper vessel until the bipersulphate of mercury remains dry; rub this, when it is cold, with two pounds of mercury in an earthen mortar, that they may be perfectly mixed, then add the chloride of sodium, and rub them together until globules are no longer visible, and sublime; rub the sublimate to very fine powder, and wash it carefully with boiling distilled water, and dry it; this forms a whitish powder, which, on the addition of potash, becomes black, and then, when heated, runs into globules of mercury; it is also vaporized by heat; the distilled water with which it has been washed, or in which it has been boiled, gives no precipitate

with nitrate of silver, lime-water, or hydrosulphuric acid.

The characteristic properties of the chloride of mercury or calomel are essentially different from those by which the bichloride or corrosive sublimate is recognised. It is almost tasteless. It has a faint, yellowish-white colour, but, by long exposure to the action of light, it assumes a blackish cast. It is luminous and phosphorescent when rubbed in the dark. It has scarcely any smell. It is generally seen in the shops in the form of a heavy powder, but crystals are sometimes obtained in tetrahedral prisms; occasionally there are two quadrangular pyramids formed, base to base, so as to make a very long and pointed octahedron. In mass it forms compact, translucent, shining cakes. It is insoluble in water. It is much more difficult of volatilisation and sublimation than the bichloride. The consumption of calomel in this country is very great, and large quantities are likewise exported to the East Indies; it is manufactured upon a large scale at Apothecaries' Hall; and the sublimation, owing to the management of Mr. Hennel, is performed with great nicety and care. The vessels are large, and made of good conducting materials, so that the calomel falls down in an impalpable powder, like a shower of snow, and then only requires washing and levigating to obtain it in a state of minute division.

In all the forms in which mercury is exhibited, it requires care and caution; but where it is combined with the powerful acids, as is the case in corrosive sublimate and calomel, it becomes a most dangerous

tool in the hands of the ignorant or half-educated man. Pills, containing simple metallic mercury, have been long employed, and, properly managed, a mild and gently active medicine is the result. Our old Pharmacopœias embrace various recipes for the *pilulæ mercuriales*; they consisted of crude quicksilver made into pills, with honey, crumb of bread, and other simple ingredients. The College of Physicians has adopted confection of red roses and liquorice; the weak acid that is in the confection may cause an oxidation of the mineral; but altogether the preparation is a valuable one. Two drachms of the mercury are triturated with three drachms of the confection, until the globules of the quicksilver have disappeared, and then a drachm of powdered liquorice is added, and the whole mass is beaten until a complete incorporation takes place. Minute division of the mineral is thus effected, and one grain of the mercury is contained in three of the mass. It sometimes happens that sulphuric acid has been added to the conserve of roses to increase its colour, and hence the pill has contained some portion of the deleterious sulphate of mercury. This pill has been long much celebrated under the name of blue pill, and is one of the most popular remedies of the day, in the dose of four or five grains. Its high estimation it chiefly owes to the work of the late Mr. Abernethy, entitled “Surgical Observations on the Constitutional Origin and Treatment of Local Diseases,” and likewise to the practice which he pursued, and the precepts he inculcated amongst a large portion of the students of

medicine, who are now in the full zenith of their honourable career.

Few individuals who have adorned the profession, possessed a clearer and more accurate knowledge of the principles of science than Mr. Abernethy, and no one ever explained them with greater simplicity, or with less of the entanglement of barbarous and uncouth names: he was, to the highest degree, plain, and therefore thoroughly intelligible. He had none of the deep learning and research of his two cotemporaries, Dr. Young and Dr. Mason Good, but he was infinitely their superior in the explanation of his views; for he did not, as they have done, encumber their writings with the crude and unintelligible phrases from Greek, nor did he attempt to establish systems founded upon artificial arrangements. He watched the powers of Nature; he recalled the surgeon to the path of physic, he showed to him the effect of local disorders upon the constitution, and the reciprocal operation of constitutional disorders upon local diseases; he pointed out that the digestive organs may be affected by local disorder, and that upon the due function of these organs the health of man mainly depends. His object was "to excite, by means of medicine, a more copious and healthy secretion." The passages beginning from the sixty-fifth page of the third edition, commencing, "It is a principal object of medicine to give strength and tranquillity to the system at large," ending at those in which he enters upon the utility of mercury, contain golden precepts, which, as in the days of antiquity, should be en-

graved on a tablet, and suspended in the Temple of Health, for every man to read, remember, and obey. They form a code for individual well-being; and that the author should triumphantly desire those who sought from his dispensations relief from their sufferings to read them, was sufficient evidence that they were the result of mature reflection, of honest conviction, and of thorough reliance upon the soundness of the views which time and practice had not changed.

It was a singular circumstance, that whilst this good and amiable man was occupied in inculcating the necessity of strict attention to the digestive organs, and to their excretions, another highly practical man was employed upon the same object; and that from the Infirmary of Edinburgh Dr. Hamilton was teaching how valuable, in the treatment of disease, was alvine evacuation. Whilst, however, this distinguished physician was instructing that this should be done with energy and quickness in the acute diseases we are called upon to treat, the cautious and sagacious surgeon was employed in demonstrating it should be effected, in local and in chronic diseases, by slower and more gradual operations. The combined views of these enlightened men have tended to improve the treatment of disorders, and have given hints for the preservation of health and the prolongation of life. To the knowledge of the necessity of great attention to the excretions may chiefly be attributed the increased longevity of man, and his freedom from many of the diseases of former days.

Mr. Abernethy's mode of pursuing his mercurial course was cautious and regular. He prescribed only small doses, taking care that the error, so often fallen into, of increasing the quantity when any benefit was perceptible, should be avoided. Nothing can be more injudicious than the augmentation of the quantity of this medicine without sufficient reason. In small doses the biliary secretion is corrected, and the digestive organs are placed in a healthier condition; larger quantities exert an influence on the whole constitution, and alter the state of the nervous system; thus controlling disease dependent on an irritable and disturbed state of the nervous function; but, in still larger quantities, it never fails to irritate and weaken the system, and thus to derange the digestive organs. Five grains of blue pill, taken at night, will not irritate the bowels, but, generally speaking, three are sufficient, and may be continued for some days; occasionally the mouth becomes affected, with a very few nights' repetition of the dose, but this often depends upon the badness of the blue pill; for a very small quantity of sulphuric acid, in the conserve of the roses, will materially affect the preparation, and produce very bad consequences. It happens, whilst the secretions from the liver are decidedly improved, as the excretions testify, that dyspeptic symptoms supervene; in such cases the blue pill is to be discontinued, and again had recourse to at a future time. Calomel, in a very small quantity, will often be the source of high irritation where blue pill is indicated.

The functions of the skin are often impaired in consequence of disordered state of the digestive system, and these are restored to their wonted state by this remedy; the operations of the mind are enfeebled from similar causes; hence hypochondriasis, disorders of the nervous system, and hysteria, which are controllable by the same means. Enlargement of the absorbent glands, malignant tumours, and ulcerated sores, are relieved and cured, when they are connected with such disorders of the digestive organs as are remedied by this therapeutic agent. Every system of practice is not only likely to be too much extolled, but it is also liable to be followed with too sanguine expectations, and to be pushed to a greater extent than the original founder intended, and doubtless this has been the case with the blue pill. It is capable of producing much mischief; its abuse is as formidable a cause of disease as its proper employment is certain of being a source of health. It is not any one plan, or any one particular remedy, that can be relied on in all the complicated maladies of our nature; but there are unerring principles which guide us in our practice; there are certain effects produced upon the human economy by certain agents, and a knowledge of the influence of each must teach us not to circumscribe our list of remedies, nor to place undue reliance upon any drug, however powerful it may prove. From want of such a reflection the blue pill has been too often indiscriminately employed, and has become the source of mischief.

One of the great improvements that has taken

place, both as regards the management of health, and the alleviation of disease, has sprung from the wisely disseminated knowledge of the due precautions to be taken for keeping the bowels in a state of freedom, and, if possible, of acquiring a habit of periodically evacuating them. A conviction has been stamped upon the minds, as well of the people generally, as of the profession more particularly, that there is an absolute necessity of regularly excreting from the human body such matter as may have been taken in by the stomach, and which is unfitted to enter into the organization; this, if allowed to remain, not only acts as a mechanical obstruction to the free passage, but, as it must undergo decomposition of a very peculiar character, becomes the source of incalculable mischief. A disturbance of the functions of the whole frame, if not the immediate, must become the ultimate attendant upon collections of fæcal matter in the intestinal canal, and a vast variety of diseases may be traced to this source; and many that otherwise would but little disorder the system, are very strikingly aggravated, and tend to reduce the nervous power, so as to preclude the possibility of reaction.

Although there had existed a general knowledge in the profession of the value of cathartic medicines, it was not until the two eminent men who belong to the race just passing by, drew very particular attention to these most important therapeutic agents, that all the points connected with them were thoroughly investigated, carefully examined, and completely explained. Dr. Hamilton and Mr.

Abernethy were struck, much about the same period of time, with the necessity that exists of judiciously administering these remedies; and whilst the first of these distinguished men devoted his attention to their power in some of the more acute and more striking diseases, the other fully developed a series of philosophic inquiries and reasonings upon their utility in chronic disorders; and they both of them furnished us with the successful issues of their practice, and the cases upon which they founded the recommendations they gave to the profession, of ascertaining for themselves the importance of the system they inculcated. Their views were freely canvassed by the profession, their practice was followed, and the beneficial results were very speedily acknowledged.

Not only do we find this class of medicines possess a most energetic influence over many diseases of the most aggravated character, but we find them necessary in almost every disordered state of the frame; they prevent the access of fresh symptoms, which almost invariably supervene when the equilibrium which seems to exist in the constitution is lost; but they prepare the system for the influence to be produced by other remedies; many of which, indeed, not only lose their power, but increase the mischief, if these agents have not been duly and cautiously premised.

Narcotics are only fresh sources of disturbance to the nervous system, tonics only act as astringents, and drugs, whose power is to be directed to particular organs, lose all their efficacy if the sordes

covering the imbibing surfaces of the intestinal canal be not thoroughly cleansed away; and the practitioner scarcely ever errs, who, when first called upon to attend his patient, commences with the administration of a purgative medicine, more particularly if he direct his attention to the cleansing out the whole of the channel. The evils that are attendant upon an inattention to the due unloading of the bowels, almost surpass the common belief; yet they are manifold, and almost every organ in the system sympathises, directly or indirectly, with the digestive and excretive powers; and if they be impeded, sooner or later the ill consequences are manifested. It is to our superior information at the present hour upon these topics, that the putrid fevers, the malignant sore throats, the ill-conditioned ulcers, the intractable diseases of the skin, are now comparatively so little known; the regularity observed in our domestic habits has its influence too upon longevity, and upon the disorders of old age; the periodicity which is now so universally observed tends to make the later days of life more endurable, and the vigour of manhood is not so soon exchanged for the debility of age. It is a matter of astonishment to find that, within the memory of man, individuals suffered weeks to elapse without the slightest attempt to obtain an evacuation, and that they constantly sought to restrain the urgent entreaties of nature; at this moment, in various parts of the continent, this carelessness still exists. Nature in such cases ceases to make efforts for the expulsion of the collected fœces; they at last become

indurated, and whenever it is found absolutely necessary to expel them, the discharge of the mass is almost as painful as parturition. The first indications of the ill effects of this neglect is fœtor of the breath, sometimes an indescribable odour of the skin, foulness of the tongue, constant headaches; and these are followed by various derangements of the functions of the body, and each portion of the alimentary canal, from the stomach to the rectum, exhibits some signs of disorder; these, from the dyspepsia of the first of these organs, may be traced even to the hæmorrhoids at the verge of the anus, and various morbid conditions that occur may be distinctly pointed out; nor is it the corporeal powers which alone suffer; there are manifest symptoms of the influence upon the functions of the mind, upon the temper and upon the feelings; even actual disease of the brain may occur. Abernethy has observed that the ancients sought to correct the prejudicial consequences of disorders of the stomach and bowels by purging with hellebore; still, however, we do not know that this class of medicines was thoroughly understood by them; we find Hippocrates always depending upon diet as his most potent weapon; and he rather combated disease by it, than by the remedies of a more decisive character; and probably in Greece, where the diet was evidently less stimulating, and less was taken, purging was not likely to be called for. The remedies of this class, which he employed, were of a very rough character; they acted both as emetics and as drastics, and hence he was very cautious in

the rules he laid down for their exhibition. He would not give them during the dog-days, nor would he suffer them to be prescribed for pregnant women ; and was timid in their administration both to those who were very young, and to those who were much advanced in life ; he would not order them on the access of disease, but waited until the fourth day had elapsed, in order to give time, in consonance with the theory of the age in which he lived, for the concoction of the peccant matter, which was supposed to cause the disease, and he then gave the remedy which would expel this vitiated matter. According to his view of disease, each humour had its own specific and appropriate evacuant which alone acted upon it, and the sensations of the patient dictated the efficacy of the purgative in drawing off the proper humour. Galen explained this doctrine more fully, and from his theoretical reasoning it is evident he followed the practice of Hippocrates, from which Celsus dissents. Alexander of Tralles may be considered the first who enters much upon the employment of purgatives. In gout he placed his great reliance upon the *Hermodyactyl*, which, from the imperfect description left us by the ancients, and from a comparison with the plant which is at this moment thus called, would appear to be the *colchicum autumnale*. He also speaks of rhubarb in dysentery ; he says he remembers having used purgatives in a case of acute fever, but that it requires not only exquisite discrimination and judgment, but great presence of mind and confidence in the physician. To *Actuarius* we

are indebted for the milder purgatives: he first notices cassia, manna, myrobalans, and senna; but of the last medicine he only speaks of the fruit, without any allusion to the leaves which are now so generally employed; he acknowledges that he borrows his information principally from the Arabians. Our earliest physician in this country, Gilbertus Anglicanus, or Gilbert Segleus as he is called by Bale, who lived under the reign of King John, explains the virtues of certain herbs in the cure of diseases with very great perspicuity, and mentions an author called Cophon, who is also noticed by his pupil, Thomas de Garbo of Florence, as the writer of a book on purgatives; and he quotes one singular prescription, which is, to feed a pullet for eight days on white hellebore, then to boil it, and make soup of it, which he considers to be one of the best medicines that can act upon the bowels. In 1756 Brassavola published a work replete with valuable information, more particularly as to the importance, from his own experience, of different purgatives; of black hellebore, which had fallen into disuse, he speaks with great satisfaction, from having cured a maniacal case by it. The *Examen omnium syruporum quorum publicus usus est*, has been looked upon as an epitome of the knowledge of the times upon the subject of purgatives. This singular book attracted much attention, and it is particularly noticed as having been supposed to be the origin of the common expression, of “the wife wearing the breeches,” when she is the ruler of the domestic economy. This work of Brassavola is written in the form of a

dialogue with an apothecary, who states that as soon as he returns to his chamber, he throws down upon the floor a pair of inexpressibles, and taking a stick himself, he gives one to his wife, and a battle then takes place, and the victor maintains authority afterwards. This whimsical and ridiculous story was of course laughed at by the profession, but the doctor gained his end ; for his book was read, which he believed would not have been the case, had he not stated something extravagant to gain the attention of his readers. There are a few authors, who at an early period wrote upon purgatives, but scarcely any work attracted much attention. The French school of medicine inculcated the necessity of keeping the bowels in a cool and tranquil state, and Dessault pointed out that erysipelas arose from inattention to the secretions. The German surgeons, more particularly Richter and Schmucker, attributed many local diseases to gastric affections, and Scarpa, in Italy, entertained the same views ; but when Abernethy took up the subject, Fischer, a German, who published an account of the state of medicine in this country, expressed his surprise that we were so much behind the rest of the world in our treatment of gastric disease. Circumstances are now completely altered, and no medical men so thoroughly have investigated the subject, as those who have adorned our schools, and have written best on the management of health and of disease.

That portion of the work of Abernethy to which he referred his patients with an honest pride when they consulted him, and which he told them, with so

much conviction of the truth of his precepts, to engrave upon their minds, is invaluable; although the stream of human knowledge becomes daily and almost hourly enriched by the sagacity, the observations and the reasoning of learned men, yet even our improvements can add nothing to its weight. The observations upon perfect digestion, and its influence upon the system which that philosopher has made, should be read with attention, and weighed with anxious care; the quantity, the quality, and the periods of taking food are most admirably examined, and upon this inquiry is founded the practice of administering medicines by which the residue of the food is carried downward, discharged from the organs; and hence a regularity of the functions of the body is maintained, disorders of the system prevented, or, where they have occurred, alleviated or cured. Since his time, our knowledge of the materia medica is much enlarged, and we are now enabled to carry into effect many of those objects which he contemplated; and we are in possession of many instruments, by which we have it in our power more effectually to watch over the mechanism of life. One of our important steps has been to discover upon what particular portion of the intestinal canal, upon what tissue, and in what manner, each purgative medicine acts. It is not sufficient for us to be aware that the bowels are opened by one of those agents; we must be aware of the influence each produces; that, for instance, if the stomach be the point to which we look, we should neither give sulphur, nor croton oils, nor aloes, nor

scammony ; but that the earths, the roots, such as magnesia or rhubarb, or even ipecacuanha, will have upon that viscus their influence ; whilst, if the bilious excretion be required to be altered or augmented, that calomel or blue pill, or taraxacon, is to be employed ; if the small intestines demand some stimulus, that jalap, that castor oil, that senna, are the remedies best adapted for them ; that if a large quantity of fluid excrementitious matter is to be poured forth, that elaterium, that supertartrate of potash, or some of the more powerful salts, are to be looked to ; that the muscular fibre is to be stimulated to an increased peristaltic action by cassia fistula, or by scammony ; and that, in fact, we can exert a proper and due control by each, or by a combination of our agents. It is often in this that the scientific man demonstrates the superiority of his knowledge ; the superficial and inattentive practitioner thinks all purgation alike ; he has not that discriminating judgment which enables him to adapt his means to his ends, and here it is that knowledge is shown, and that the ignorance of the quack or of the foolish lover of domestic remedies is displayed. These people think that it is precisely the same thing to give their pills in every complaint ; they imagine, that because gamboge and blue pill will always purge, they have nothing to do but to mix them in certain proportions, and give them by wholesale to every one ; but there is a delicacy and a knowledge of proportions, adapted not only to every disease, but even to every constitution, of which these vile pretenders are ignorant, and by

that ignorance produce effects as certain, as does the poisoner who boldly gives arsenic or prussic acid, and is determined to brave the punishment which the more secret but equally culpable manslayer deserves, but escapes.

That which is commonly considered a most innocent medicine may be the source of the utmost harm, if it be taken at an improper moment, or under unfavourable circumstances. Medicines generally and apparently unhesitatingly prescribed, are given with safety by those only who are intimately acquainted with their *modus operandi*. Thus magnesia, than which nothing can be more useful under proper regulations, and nothing is considered more simple, has been productive of fatal consequences, from the ignorance with which it has been administered, or the perseverance in taking it when it has failed in its expected influence. Masses unchanged have been found after death closely collected together, or patches of the powder adhering with the utmost pertinacity to the intestines, because there had been none of the acid with which it should combine to be properly efficacious. Some very curious instances of this kind are upon record, and some of the cases have been, from the apparently suspicious circumstances, made subjects of legal investigation; for even death from arsenic has been supposed to have taken place, when examination has shown that magnesia has been its cause. Manna, so useful a laxative to children, is not to be used incautiously, notwithstanding its usual harmlessness. When much vegetable food has been taken, more especially in

young children, if this remedy be given, dyspepsia of a most aggravated character occurs ; the quantity of flatulence produced has been a fearful evil, and the consequences have been alarming. Castor oil, one of the favourite popular remedies, if given under improper circumstances, will not only occasion excruciating tormina, but will be the cause of the expulsion of the mucus which lubricates and defends the passages from injury, and what have been supposed to be exfoliations have taken place, leaving behind a surface so irritable, that months have elapsed before a normal state has prevailed. The neutral salts, those of Epsom, of Cheltenham, or of Harrogate, are not to be trifled with ; and many individuals who have recourse to them without proper advice have to repent that folly ; diarrhœa, dysentery, and sometimes dropsy, supervene upon their injudicious use. Gamboge, which has lately crept into fashion as a purgative, is of all others the most uncertain, and oftentimes the most pernicious ; its influence is principally exerted upon the muscular fibre, and hence peristaltic action is increased ; and as there are many who, from want of proper attention, have costiveness dependent upon a sluggishness of action, they find benefit from pills in which this forms a principal ingredient. Its power, when it is properly exerted, is very striking, and it becomes, in the hands of the well-informed man, a very valuable adjunct, but it is a most energetic engine of mischief ; it has been known to produce intromusceptio, having, from the vigour of its action, caused an inverted motion, such are its stimulating

power upon the muscles; and in some of those instances which have come before the public, of death produced by violent action of pills upon the intestinal canals, this drug has decidedly been the means employed. The good sense of the public has taught it to give up the constant employment of aloes, once the basis of every pill that was to act upon the bowels, and gamboge, which is infinitely more mischievous, has unfortunately been substituted; but, of the two evils, the hæmorrhoids produced by aloes are infinitely preferable to the diseases and to the results consequent upon the other purgative. Even senna, the valuable ingredient of the black draught, and which certainly comes nearer to a harmless domestic remedy than any other, is not so alone; it will disorder the smaller intestines for a great length of time; it is not only a momentary cause of griping and of inconvenience, but it leaves behind it a very great tendency to those uncomfortable sensations, and more particularly if the liver have not been previously called into some slightly increased action, by which the bile is poured forth, and thus the general action of the intestinal canal be duly and properly augmented; these circumstances demand the very greatest caution and attention. Indeed, a catalogue of sorrows occasioned by the indiscriminate and foolish use of purgatives might be drawn up; but such is the headstrong tendency some have to doctor themselves, that it would be rather a curious than a useful task to undertake it.

Whilst these medicines have been found, by almost all practitioners, of such importance to them in

chronic disorders; whilst they have acknowledged the force and justice of the views of Mr. Abernethy, they have likewise had great reason to sanction the practice of Dr. Hamilton of Edinburgh, who, much about the same period, recommended their use in the more acute forms of disease. His observations with regard to them, however, over typhus fever, excited considerable attention. The older plan of treatment of this once most formidable disease was, at the commencement, to give an emetic and purgative, but, after that, the state of the bowels was completely disregarded; antimonials, or bark and wine, were administered, and these formed the usual form and practice followed; as, upon the removal of atony and spasm of the extreme surface of the body, the disease would be removed, purgatives were considered most objectionable, for it was supposed by their operation they would rivet the spasm of the extreme vessels, and increase debility—one of the supposed direct causes of death in fever. As also it was known that diarrhœa attended the last stage, great apprehensions were excited, lest this stage might be induced by the exhibition of these agents.

In 1779 and in 1781, a typhus fever, more than usually destructive, broke out in Edinburgh, the first commencing in the hospital appropriated for sick persons confined as prisoners of war in the castle, and the other amongst the crews of a fleet of merchantmen anchored in Leith roads. The inhabitants both of Leith and Edinburgh were speedily infected. Dr. Hamilton followed the usual routine of practice, and mild antimonials were freely ad-

ministered; but he was led to try the tartarized antimony, and he observed that it only proved effectual when it moved the body; that the fæces were black and fetid, and generally copious; that, on their being discharged, all the most violent symptoms were abated. On reflecting upon this, he was led to substitute other purgative medicines, which he thought might be equally serviceable, and that the unnecessary debility which exhausts the patient, from the sweating and vomiting which antimony produced, might be avoided. He directed strict attention to this practice for a great length of time, and became, as since that period we have all of us become, fully persuaded that the full and regular evacuation of the bowels, through the whole extent of the intestinal canal, relieves the oppression of the stomach, clears the loaded and parched tongue, and mitigates thirst, restlessness, and heat of surface; and that thus the latter and more formidable impression on the nervous system is prevented.

His experience in the treatment of typhus led him to draw the conclusion, that purgative medicines are given with safety to evacuate the contents of the bowels; under some limitation, they may and ought to be exhibited at any period from the commencement to the termination of the fever; that the early exhibition of purgatives relieves the first symptoms, prevents the accession of more formidable ones, and thus cuts short the disease. In the advanced period of typhus gravior, symptoms that indicated the greatest danger are relieved by the evacuation of the bowels, and the patients in such instances recover.

The convalescence from typhus is greatly promoted and confirmed by the preservation of a regular state of the body ; the same means secure against the danger of a relapse. The purgative medicines which he chiefly used in fever were calomel, calomel and jalap, compound powder of jalap, aloes, solutions of any of the neutral salts, infusions of senna, and sometimes the last two conjoined. The views which led him to the same treatment in scarlatina he has also explained ; and if the same idea is not so prevalent in the profession, it may arise from our feeling that the more simple the treatment of that disease, the more certain is the patient of recovery, and that upon the evaporation of heat from the surface of the skin the safety of the individual depends. His exposition, however, of the nature of scarlatina, and of cynanche maligna, will be read with great improvement, as it furnishes us with much comprehensive and accurate information.

The best chapters in his volume are on the utility and administration of purgative medicines in chlorosis, in hysteria, and in chorea Sancti Viti, or St. Vitus' dance. That the first of these diseases is frequently dependent upon the state of the bowels we are willing to admit, but the inferences drawn by Dr. Hamilton are much too sweeping. In many cases the disease is perfectly independent of such causes, but it is our duty to discover if it be at all connected with it, and then the plan of treatment laid down by Dr. Hamilton may of course be most advantageously followed. Great attention is necessary to ascertain whether the exhibition of purga-

tive medicines be required, and this is best ascertained by the inspection of the alvine excretion. Much of the same kind may be said of hysteria, and even chorea. I must, however, refer to his work for further information. There is no doubt that the whole of the organization materially suffers from constipation, and that a vast variety of diseases are the result of inattention, and Dr. Hamilton's practice has been generally found to be highly serviceable.

All parts of the intestinal canal are liable to the destructive agency of retarded or suspended excretion; the stomach is overpowered with most distressing dyspepsia; the small intestines are frequently griped, whilst the impeded ducts through which the bile ought to pass are affected with constant spasm, and the same distressing pain which so frequently attends upon gall-stones; the large intestines have flatus pent up in them, which produces a sense of constriction, and hæmorrhoids are found at the verge of the anus. This last disease is a very common attendant upon constipation, and upon the efforts to free the stomach and bowels from accumulation; the sympathy existing between the rectum and the bladder and the rectum and the urethra is so great, that constipation will produce the most distressing symptoms in these organs.

It has been stated upon good authority, that the putrefying mass, emitting a faint, nauseous, and exceedingly pungent smell, which has been first expelled, after medical assistance, from constipated habits after febrile disease, is capable of transmitting

infection to a very considerable distance, and constitutes a miasm of the most fearful character, which speedily depresses the nervous energy of those who may be thrown within the reach of its influence; and hence spring up the host of fevers, which are familiar to some countries, spreading with the most fearful rapidity, and attacking most especially those who are by want of care predisposed to every exciting cause of disease. Few depressing agents are more instantaneous or more certain than the effluvia issuing from fæcal matter, and sometimes in hospitals it has been found that ulcers put on their most unfavourable aspect, if the suffering patient be in the neighbourhood of the temple of Cloacina.

After having entered into a view of the advantages to be derived from the action of purgative medicines, when applied under judicious medical care, it is but right to point out some of the circumstances which render this plan of treatment not only useless, but even prejudicial; and to show that persevering too long in the employment of purgatives, when the causes that demanded their exhibition have ceased, is dangerous. There is very little doubt that the system of purging is occasionally carried too far; and although the exaggerated statements of Broussais and the French school that heard him, have rather tended to lessen the evil, still there is little doubt that mischief has followed upon the keeping up a constant drain upon the alimentary canal.

It has been very sagaciously observed, that the

public are naturally fond of the doctrine of the humoral pathologists, and that they are most willing to believe that, by active purging, there is carried off a great deal of poisonous matter which would enter into the system, and gradually overpower it. When a medical man is called in, who is an advocate for the purging system, patients generally soon fall into his way of thinking; they have a sort of gratification in discharging a large quantity of nasty-looking, greenish, or black stuff; and if the excretion be attended with any marked fetid odour, they feel a sort of self-complacency; they fancy they have discharged a mass of corruption, and they are very far from being indisposed to the advice of the learned doctor who recommends them another dose of blue-pill and a draught; they say they are quite ready for it; they are quite pleased at the idea of another disgorgement, and cannot resist the gratification of making another attack upon the enemy, who, they fancy, must very speedily collect his forces. They voraciously swallow the doctor's stuff, and, as they say, they find themselves lighter, and their appetites improve. They are very much pleased with what has been done for them; and, indeed, were they then to rest contented, all would be well; but they fancy they have discovered the means of attaining lasting health, they therefore give way to the pleasures of the table, quite satisfied with the idea that they know how to get rid of any accumulation that may occur, and think that they are perfectly capable of taking care of themselves; then

probably once or twice in the course of every week they swallow some drastic purgative, either quite ignorant of what they are employing, or, from having found, under the hands of the doctor, such relief from calomel or blue-pill, they take a fixed dose of one or other of these. Sometimes, after dinner, a kind friend recommends his own pill from a prescription he had from Abernethy or Baillie, or the fashionable dyspeptic doctor of the day, which he declares he has used twice a week for the last five years, and never known an ache or pain since ; the greedy auditor swallows the tale, and afterwards the physic, whose composition may be completely opposed to his state ; he goes on with it, week after week, disordering his bowels, expelling the natural mucus, urging on the canal to increased action, till at last his stomach and the whole digestive apparatus become really impaired. He then goes from physician to physician, all over London ; each gives him a prescription for a tonic, a stimulant, or a bitter ; at length a permanent irritation is kept up, the whole system sympathises with the state of the alimentary canal, the mind is feverish and irritable, the viscera become deranged, and at last the poor sufferer falls a victim to the early benefit which he had received from the proper administration of medicine, and then from its abuse. The illness, nay even the death, of many a most worthy member of society may be traced to this love of tampering with medicine, which commenced with the greatest relief having been derived from purging the bowels at a proper period, but which benefit had been converted into an

actual evil from the persevering in a course of remedies which were not required ; and there are men of very great natural sense, gradually quacking themselves to death by calomel and blue pill, which they have taken to under completely erroneous impressions.

The unnatural colour and the fetid odour of the stools, are quite as often produced by the medicine that has been exhibited, as by any other cause ; for often does calomel give rise to the very odour which some persons think is a proof that medicine is to be continued ; the slimy stools of children, which are often the cause of purging being carried on to a very great extent, are, in many instances, the consequence of what has been given. As long as the remedial agent is taken, the fæcal residue does not acquire its wonted solid consistence, nor give forth the usual smell, which is acquired from its remaining in a certain portion of the large intestines. It is but, comparatively speaking, from a limited surface that the mixed odour is acquired, and there is a very great difference between that which is caused by the secretion from the liver, and that by the lower portion of the intestinal canal. The offensiveness of the fæcal evacuation, though it may guide the practitioner as to the particular viscus which is disordered, cannot serve as any assistant by which he may ascertain whether more action is required. This subject is involved in some obscurity, from the unwillingness of writers to enter upon points which are by no means agreeable to the general taste of society. Dr. Hamilton is the only one who has at all

ventured to show the necessity of the regular and accurate examination of every alvine evacuation ; but he, like every enthusiast, rode his hobby a little more hardily than was required.—To those who remember him in the wards of the Edinburgh hospital, there always appeared somewhat of the ridiculous in his manner of investigation of the carefully preserved utensils ; but his conjectures with regard to the actual ailment, which he supposed they exhibited, was very often perfectly correct ; his diagnosis was generally founded upon this ; but those who followed his system have placed no great faith in the power of regulating the dose, of determining the frequency of the repetition, or of judging which particular remedy should be had recourse to. Although, in many diseases of infancy and of childhood, aperient medicine is certainly useful, yet it should ever be borne in mind, that with excrementitious matter, there may be very often carried away that which nature has with some difficulty elaborated for nutrition ; and in weak sickly children who have a tendency to scrofula, it not unfrequently happens that the food which was intended to be imbibed is just carried away at the moment when the glands most require something to store up for future nourishment ; the torpid action of the alimentary canal is only to be got rid of by slowly stimulating, there ought only to be gentle solicitation of the alvine contents. The frequency with which diarrhœa, dysentery, acute pains of the bowels, and high gastric irritation, supervene upon purging, is to be borne in mind ; and this must be

recollected more particularly when it is necessary to use these remedies in hot climates. Under ordinary circumstances in chronic disorders, it is requisite daily to obtain one copious fæculent soft yellowish motion from the bowels; liquid stools are unnecessary, sometimes are hurtful; this should occur, if possible, shortly after the morning meal, though there are cases in which, from affections of the rectum, of the kidneys, of the bladder, this discharge ought to be obtained just previous to the individual retiring to rest; for it often happens that a horizontal position after the evacuation of the bowels is indispensably necessary. In acute diseases, it is often very requisite to keep up, for a succession of days, an active excretion from the whole surface of the canal, and for this purpose a mixture of the various remedies is required, so that an influence may be extended to each part, and every organ more or less called into exertion. It is surprising how soon a well-directed action upon the various parts produces its influence upon the vascular and upon the muscular system; how soon inflammation may be controlled, a plethoric state removed, or an inordinate determination to the organs or tissues checked; but all this requires study as to the theory of the mode of operation, and actual experience to determine the line of treatment best to be pursued.

The judicious management of purgative medicines will always be found most materially to alleviate the disorders of the system, to control inflammation, and to restore the functions of the

animal economy to their state of health and of vigour; and the art of combining these remedies with others of great importance, must be acquired by observation and by experience. It is not upon the increase of the peristaltic action of the bowels that their valuable operation alone depends; it is upon their exciting the salivary, the gastric, the biliary, the pancreatic, the mucous secretions, and upon their aiding the functions of the digestive, the chylopoietic, the nutrient, and the imbibing organs; and indeed every action of life may most materially be influenced by their power. Bleeding sometimes assists the action of purgative medicines, where we judge, from the hardness and frequency of arterial action, that inordinate tension is present, and that inflammation may be likely to supervene. Cold upon the abdominal region, friction over its surface, will aid in giving a stimulus to their operation; injections into the rectum may render them more speedily operative. The union of different articles possessing purgative powers is oftentimes a matter of great importance, whilst, however, the adding together a large variety of purgative medicines must be avoided. By a proper adjustment of these remedies, each known to have its own peculiar influence, great power is placed in the hands of the skilful medical man. The observations made by Hippocrates, of their effects upon diseases of the lungs, it has been said, have not been acknowledged generally, though they have been appreciated by the true observers of disease. We have had no examination of the therapeutical powers of different agents

in pulmonic diseases, though the labours of so many distinguished men, both in this country and on the continent, have been directed to the diagnosis of the various changes that occur. Hippocrates has said, "It is a very curious fact, but one fully confirmed by experience, that, urged to any extent, evacuations from the bowels are found in the complaints of the lungs always mischievous, and in some cases so injurious as to be wholly inadmissible. Even in pleurisy, we cannot purge with the same freedom as in other cases of acute inflammation. But in the chronic pneumonic affections, and especially in pulmonary consumption, the system immediately sinks under the operation of purgatives, and hence we are so careful to restrain diarrhœa in this disease.

There are certain general rules with regard to the administration of these medicines, besides those which may have more immediate reference to each particular one. It is generally advisable to commence with small doses, and to be aware of the fact, that, with the exception of the neutral salts, they lose their power by frequent repetition. A combination frequently is more effectual than any one singly, but such articles are to be selected as operate upon each portion of the great canal on which an impression is to be produced; always avoiding large doses or drastic cathartics alone, for they then violently gripe, harass, and inflame the bowels, sometimes leaving behind an impression which exists for some considerable length of time. When the stomach is to be more immediately the viscus to be acted on, as by the administration of

rhubarb, of magnesia, the morning is the best time; when the lower bowels, at the hour of retiring to rest; and this is generally the time at which blue pill, calomel, or any agent upon the liver, is likewise best exhibited.

It is not possible to speak with decided precision, or to give a satisfactory account, of the action of each of the purgatives; nevertheless we can of the greater number, and the difficulty is to distinguish precisely, as Dr. Hamilton has observed, those which act more particularly on the smaller, and those whose influence is exerted on the larger intestines. In many diseases, it is the steady and uniform exhibition of these medicines in full and decided doses, that produces the effect required. Sir Anthony Carlisle has justly stated, "that the use of purgative medicines is often requisite to an amazing extent. Febrile and inflammatory affections, whether arising from constitutional or local causes, it is observed, are never relieved until the bowels are freely disgorge; and to effect this, a reiterated purgation is absolutely necessary; the only proper criterion being a perfectly flaccid, soft, and compressible state of the abdomen. It is, indeed, astonishing how great a length of time substances may remain in the bowels: as a case in point, I may relate, the cook of the late Duke of Portland, who had a very extensive gangrene of the leg: he was a man of full habit, and I treated him, as I often do such persons, with success, both in cases of gangrene and carbuncle, with free purgation. Although in the course of four days he

had, I think, about seventy stools, yet after this I was surprised to find in the evacuations some caraway seeds, which he had eaten more than a week previously."

In the case of syphilis, the experienced practitioner generally keeps up a mild mercurial action upon the system, as long as the peculiar ulcer exists, or there is any appearance of tumidity and induration at its base; for, as long as these are perceptible, we cannot feel persuaded that the constitution has been sufficiently influenced by the medicine. Some judgment, only to be acquired by observation, is necessary to distinguish cases in which diseased action has not altogether ceased, although the characteristics have almost disappeared. The greatest attention is occasionally demanded, before the decision is arrived at, that the mercury must be discontinued: sometimes a mild influence should be exerted on the system for ten days after the disappearance of the primary ulcer. It is generally advisable to combine the mercurial that is employed with opium. John Pearson observed, "The opium, when combined with mercury, does not in any degree increase its efficacy, nor would it be safe to rely upon a smaller quantity of the mineral specific, nor to contract the mercurial course within a shorter limit than where no opium has been employed; yet we frequently hear people expressing themselves as if opium manifested some peculiar qualities in venereal complaints of a distinct nature from its well-known narcotic properties, and thus afforded an important aid to mercury in the removal

of lues venerea. But opium, when given in connexion with mercury, by diminishing the sensibility of the stomach and the bowels, prevents many of those inconveniences which this mineral is apt to excite in the primæ viæ, and thus its admission into the general system is facilitated. Mercury will likewise often produce a morbid irritability, accompanied with restlessness and want of sleep, and it sometimes renders venereal sores painful and disposed to spread. These accidental evils, not necessarily connected with the venereal disease, may be commonly alleviated, and often entirely removed, by a judicious administration of opium, and the patient will consequently be enabled to persist in using the mineral specific. But the opium here communicates no sort of additional virtue to mercury; it in reality assists the constitution of the patient. The salutary effects of mercury are often lost by the super-vention of diarrhœa, of vomiting, of dysentery: opium will often correct these morbid effects."

By the action of calomel, such a degree of action may be kept up in the system as is fully necessary for all its good effects to be produced without incurring the inconvenience and hazard of salivation. As soon as the gums or breath exhibit proof of its influence, the hydrochloric acid or sarsaparilla may be given. The quantity of calomel must be adjusted to the constitution of the patient: whilst some can freely take six grains during the day, in doses of three grains in the morning, and three grains in the evening, others are too susceptible to commence in this manner. The blue pill combined with hyoscy-

amus or conium, in doses of five grains of the pill, two of hyoscyamus or five of conium, twice in the course of the day, is preferred by some practitioners. Mercurial ointment by friction, and the red sulphuret by fumigation, are attended with so many inconveniences in private practice, that they can scarcely be had recourse to. The diet is of essential importance during mercurial treatment ending in salivation ; although stimulating food is unnecessary, nutritious substances, which are of easy digestion, should be freely taken : there is no necessity to avoid a moderate quantity of wine, but any indulgence in more than the ordinary beverage is not to be allowed. The late Dr. Wallace was in the habit of recommending the promotion of the process of digestion, and the preserving a healthy state of bowels of individuals under the action of mercury, by the mastication and deglutition of grains of allspice or pepper occasionally during the day, and by covering the abdomen with two or three folds of flannel. These precautions are very serviceable, more particularly in a climate of such vicissitudes as that in which we live, and which so materially influences the action of medicines.

Amongst the subjects of importance to society are questions that have been agitated by some of the most experienced, who have combined with acute powers of reasoning great practical information, that have not entirely been decided. One of these inquiries has been directed to ascertain whether syphilis can be cured without the employment of mercury ; and another also remains for

discussion, which of the preparations of mercury is the most useful.

To the first of these points the answer made is, that the cure may be effected, but it demands a thorough knowledge of the stage and state of the disease, the time at which it was first contracted, and the constitution in which it appears; and with regard to the second, nearly the same answer may be returned, the particular remedy depending upon the stage of the disease. Amongst a large class of patients, great dissatisfaction exists if mercury is not employed to some extent; and should they, during two, three, four years, or even for a longer period, have a pimple upon the face, or an ache in the leg, they will declare that they believe that it is owing to their not having been perfectly cured when they laboured under this affliction; and practitioners are often obliged, in compliance with the earnest anxiety of their patients, to have recourse to mercury, when they do not feel perfectly satisfied either as to the necessity or the utility of this remedy. Hennen, who, in his *Principles of Military Surgery*, has a short treatise upon syphilis, which is one of the most valuable little essays upon the subject which is to be found in our language, quotes an old author, Nicholas de Blegny, who quaintly says, "When pocky people have been told that they cannot be recovered but by salivation, and that they are only quacks and empirics who promise to cure it by other means, they become deaf to all further instructions and advice, and firmly believe that all other methods are dangerous and erroneous."

Among the reasons that are now advanced for the administration of simpler medicines, such as the acids, sarsaparilla, guaiacum, bark, hydriodate of potash, where mercury would formerly have been given, is an idea that seems generally prevalent, that syphilis has during the lapse of years changed its character, so as to be of a much milder nature, and much more tractable. Doubtless during its first appearance it was often combined with diseases which arose from filth, from bad diet, and from neglect. Leprosy and scurvy at that time were the scourges of the people, and the new disease often attacked those whose constitution had been previously harassed by these enemies of the human race. We very speedily, however, find the authors congratulating the world upon the milder form in which the disease appeared. Ulrick de Hutten, in 1519, says that its virulence in Germany had somewhat abated; in 1563, Bernardinus Tomitanus of Padua foretells the decay of the disease, and thinks it will soon be no longer communicable by the intercourse of the sexes. He states that when first this malady appeared, all the innocent pleasures of society were checked, but that they began to be again indulged in, and convivial parties once more assembled; and he shrewdly observes, that once again marriages were contracted, and that the parties began to be more inquisitive about the settlements that could be made than about the disease they had lately so much feared. Astruc collected the testimonies of various authors, who believed that the disease was milder, and adds his own: He says, "I have by careful and

repeated observation found the venereal disease to grow milder; it may, perhaps, be more frequently contracted than formerly, yet its rage is less violent, its symptoms are not so many, so painful, nor so difficult to be cured. It yields more easily to remedies properly applied, and, in a word, seems by little and little to approach towards its close. This was in the year 1735, just a century ago.

Of the frightful ravages committed by the disease, we may best judge from some extracts made by Hennen from the rare volume of Ruy Dias de Isla, "Contra las Bubas," published at Salamanca in 1550, from which it appears that in no town in Europe of one hundred inhabitants were there fewer deaths than ten on the first appearance of syphilis. He adds, "Now if we recollect that the numerous monks and nuns spread the disease through all classes of society, it is not an extravagant calculation that fifty out of the hundred were diseased." But putting the mortality out of the question, Ulrick de Hutten expressly states that hardly one in a hundred was perfectly cured, the disease returning on them again, as it did on himself after eleven salivations.

Various were the attempts made throughout Europe to prove that mercury was not necessary in the cure. Guaiacum became the fashion; it was sold at an enormous price; a medicine which nearly corresponds with our compound decoction of sarsaparilla, and which was called the decoction of the woods, was the celebrated remedy."

Morgagni, whose veracity is considered unimpeachable, tells us that when, as a young man,

he went to Bologna, both the external and internal methods of using mercury were so far abandoned that he never saw any physician make use of it, or even heard of his using it, for the whole space of eight years during which he studied physic there: he then says, "What remedies, then, have you seen those very excellent physicians make use of, you will say, against the lues venerea? Why, the decoction of the woods." Nay, it was soon the fashion to ascribe to the mercury many of the ravages which had previously been laid to the door of the disease. Fallopius, Fernelius, and Palmarius, speak of the bones becoming affected by its use.

Since that time, various have been the means which medical men have had recourse to in the treatment of this malady; and from John Pearson's observations on the effects of various articles in the cure of lues venerea, we may draw the inference that almost every article known to us in the *materia medica*, as possessing any real influence upon the human economy, has on one occasion or another been tried; indeed, we are taught, from the description of Africa, given to us by Leo Africanus, that the disease is there spontaneously cured by a change of climate; this has been confirmed by a recent traveller, Horneman, who says there are various sorts of venereal disorders prevalent in Fezzan; that imported from London is the worst. The common lues venerea brought from Tripoli or Cairo is called the Frank evil, or Franzi. For the cure of either species they use salts, and the fruit *condal colocynth* as

powerful cathartics, and the sores, if any, are at the same time washed with natron water or dissolved soda, these remedies seldom fail, unless the disease has taken a deep root.

The aphorisms of the great professor Boerhaave, which have been commented upon so admirably by Van Swieten, were received as the law of medical men throughout Europe for a long space of time. His aphorism 1458 inculcates that gonorrhœa is cured by the bath, by fomentation, by injection, by mercurial purgatives often repeated, by emulsions, by balsams, by abstinence from all food or diet which can stimulate, and by attention to moderate diet; that numbered 1467 teaches us, that where pustules, pains of the limbs, large buboes, agony in the bones, nocturnal distress, are present, a mercurial salivation is demanded. Upon these two aphorisms Van Swieten has bestowed great labour and learning; they terminate with the expression of his dislike to the external application of mercury, and to the commendation of the use of the bichloride or corrosive sublimate.

Boerhaave recommended that every two hours a dose of mercurius dulcis, which is very similar to the calomel of the present day, should be taken until three or four pounds of saliva were daily excreted, and this was to be continued until the symptoms all disappeared, and the time estimated was commonly six-and-thirty days, after which a gentle action upon the salivary glands was kept up for the same number of days, and the concluding

aphorism is, no other remedy is requisite for the restoration to health.

Such was the discipline for a long time pursued. In this country the same plan was followed, but rubbing in the ointment was preferred; and we learn that such extravagant loads of ointment were employed, and with such irregularity, that the most deplorable consequences were too often witnessed.

About the year 1757, the corrosive sublimate was introduced into this country under the auspices of Sir John Pringle, as the best salt to be used in the cure of the disease. In the first volume of the *Medical Observations and Inquiries* will be found a very interesting paper, entitled 'The Cure of the Lues Venerea by the mercurius corrosivus sublimatus,' communicated to a member of the Medical Society by Abraham Gordon, surgeon-major to the third regiment of foot, commanded by Colonel Howard. It gives the narrative of the method of administering a solution of this salt, and of the success it had in the regiment, then encamped in Dorsetshire, where there was a great number of venereal cases, with little accommodation for salivating. It consisted in giving the corrosive sublimate dissolved in malt liquor, or in French brandy, or the common molasses spirits of the country, in the proportion of one grain of the mercury to two ounces of the spirit. The dose was from a common spoonful or half an ounce to two spoonsful or an ounce twice in the day, adjusting the quantity to the strength of the patient and the virulence of the disease. The solu-

tion was continued as long as the symptoms remained, and the patient was restricted to a low or spare diet ; the drink, plenty of barley water, with a little milk, or any diluting liquor. Twenty cases are related, in all of which this treatment was eminently successful. The action seems to have been confined to the skin and to the kidneys, for both the perspiration and the urinary secretion were increased. Mr. Boyd, surgeon to another regiment, was equally successful. The author says, that from what he has seen himself, and learned from its success in the other field hospitals, he greatly prefers this medicine to salivation or any other mercurial course he has tried during the fifteen years of his service in the army, whether he considers the certainty and the speediness of the effects, or the ease and safety of the cure.

It was to the illustrious Baron Van Swieten we were indebted for the original introduction of this system of cure, which unfortunately has been again abandoned. It was at the military hospital at Vienna that Van Swieten first made a series of the most important trials ; for his attention had been drawn to the dreadful evils inflicted by the long and cruel system of salivation which at that time pervaded Europe. Such, however, was the outcry raised against this innovation, that there was the utmost difficulty in obtaining a fair trial. The plan was called impious, cruel, inhuman. Probably one of the most interesting dissertations to be found in medical literature is the one in which this skilful physician gives the narrative of his

labours, and his views of the treatment by salivation. It is contained in the elegantly written commentary upon the 1477 aphorism of Boerhaave. The incredible horrors to which an unfortunate young man was in those days submitted for the cure of the venereal disease, are related with such apparent fidelity, and such painful accuracy, that those who read them must feel grateful that they are born in an age when the light of truth has dispelled the fearful gloom in which mankind walked, and has made the science of medicine the source of happiness and of comfort, instead of a scourge, a torture, and a curse.

The tender infant was submitted to the same treatment; for we learn from this dissertation that whole families were diseased, and had to undergo the same miserable course, until a long-protracted salivation occurred. This excellent man saw that this was unnecessary, and he gradually was brought to the conclusion, that the bichloride or the corrosive sublimate of former days would be an active remedy. It is not possible to do justice to the reasoning upon which he founded his system by any outline; I must recommend its perusal.

It was in the hospital called St. Mark, which had been founded by some benevolent people in the immediate neighbourhood of Vienna for the cure of persons affected with the venereal, that Van Swieten first commenced his mode of treatment. In this institution, from its foundation, there had been some recipe employed which was kept a secret; it was, however, a mercurial, and the administrator was

not required to be a medical man. Van Swieten however, obtained an order that for the future the hospital should be under the direction of proper skill; and Maximilian Locher was appointed, who found, in May 1754, a hundred and twenty-eight patients confined to bed, awaiting salivation. Upon these the corrosive sublimate in spirits was tried, and they were all cured. In eight years there left this institution, thus cured, no less than four thousand eight hundred and eighty persons. This plan was persevered in until the death of Locher, who declared that no one had ever died in consequence of the remedy, and that no dangerous or severe symptom supervened. Unless there was in the *primæ viæ* anything to be removed, no other remedy was found necessary to be administered. Men were more easily cured by this mode of exhibition of mercury than females.

Three hundred soldiers were sent to St. Mark, and Locher wished to reject six as totally incurable. They had often suffered from the disease; they had almost all their bones carious; they entreated, with prayers and tears, to be allowed to undergo the treatment; and accordingly, with the others, they were submitted to the cure by corrosive sublimate; but upon them no good effect was produced, whilst all the others left the establishment perfectly cured. But what was the astonishment of Van Swieten, when a document was placed in his hands from the council of war, stating that the physician had not only dismissed these three hundred men without effecting a cure, but that they were actually

worse than before! The records of the hospital, however, showed the names of the soldiers, the companies, the regiments to which they belonged, the day of entrance and the day of departure of each. By good fortune all of them happened to be at that time stationed in Vienna. The physician of course demanded an inquiry. Under various pretexts this was delayed, and in the mean time the calumniator disappeared; and Van Swieten triumphantly quotes the language used by Cicero, when Catiline left Rome, "abiit, excessit, evasit, erupit." He says, those who do not like this plan are at liberty to try any other; and certain it is, that patients who are afraid of it will find plenty of practitioners who will have no objection to try the old system of torture by salivation. This plan soon afterwards gained ground in all the military establishments in Europe, and officers were generally pleased to find the soldiers not only quickly restored to their duty, but, in fine open, cold, and sunny weather, capable of going through much fatigue without any complaint.

Hennen observes, that, independent of the details in books, innumerable opportunities have been afforded to British surgeons, since the peace, of seeing the unquestionable efficacy of this medicine at the hospitals in Paris; and yet a very few years since, no orthodox English practitioner would have trusted his patient's safety to it. I believe that, in the first stage of the venereal disease, no remedy more quickly, safely, and certainly acts than does corrosive sublimate thus administered, and I am

somewhat surprised that it is not more universally employed by medical men. It is the most common mode followed by the uneducated classes, and the quack very often gains a good livelihood by his knowledge of the value of this salt. I believe it enters into the composition of "the vegetable syrup!" It has been, on most occasions of this sort, given in combination with sarsaparilla, or sarza as it is now called, and also with the decoction of the Peruvian and other barks, upon all of which it exerts some chemical changes; but with which, nevertheless, it is very usefully employed, as it also is in cutaneous diseases of long standing, and in scrofulous sores. Willan thinks it the only useful preparation of mercury in lepra, its operation being promoted by the use of an antimonial, or the decoction of woods. It is likewise much commended as an external application; a grain in six or eight ounces of rose-water has obtained a reputation in venereal ophthalmia. It is decomposed by a great number of substances, which render it rather difficult to be administered in composition, and ordered in extemporaneous prescription. Thus, it should not be given with almond emulsion, with infusion of chamomile, with nitrate of silver, with acetate of lead, with tartrate of antimony. It is partially decomposed by the action of light, and should therefore be always kept in opaque bottles.

There are circumstances under which blue pill and calomel may be ranked amongst tonic medicines, for they gradually remove the sordes that have accumulated in the intestinal canal, which pro-

duce dyspepsia, and the Protean forms in which that distressing foe to man makes its appearance. The extensive sympathy which exists between the stomach and the whole nervous system is quickly perceptible; alike, the body and the mind acquire tone and strength; all the actions of life are restored to their wonted state. Where this benefit is expected from these medicines, great care is required, lest the doses are ill adapted to the patient's actual condition; and the invalid is in general the worst judge upon this point. The intervals between the employment of the remedy should be watched, and in many instances tonics of the most decided character, such as cinchona, quina, or iron, become necessary.

Minute doses of mercury frequently repeated have met with their warm advocates both in chronic and acute diseases; and when Abernethy's mode of administering blue pill has been unsuccessful, the plan of diminishing the dose, and increasing the frequency, has been inculcated. From half a grain to the eighth of a grain has been proposed, and has been considered beneficial, given at intervals of from six to eight hours. I have seen great irritation of the system kept up by this treatment in many cases in which this plan has been followed. In affections in which a vitiated state of the bile was predominant, a degree of nervous excitement has been often produced upon the third or fourth day, which has called for a discontinuance of the remedy. Notwithstanding a rigid attention to the rules which have been laid down in the management of small doses, I have had occasion to observe

failures where benefit was expected to be derived. Nor have I found any cases in which Abernethy's system failed from any of the causes which usually operate, in which blue pill could be borne in any dose. I have uniformly found, where blue pill was distressing in one dose, that it was equally so in another, and I have rarely found the minute quantity better borne than the larger, if repeated. An active dose of medicine has generally been absolutely necessary to carry off the source of irritation, and sometimes nervous depression. A great tendency to action, on the mucous membrane especially, marked by sore-throat, has speedily followed a perseverance in this system. To give tone and strength to the system during mercurial medicines generally requires great knowledge of the patient's constitution; for irritation and excitement are as often the result as the depression and debility, which indicate the necessity for the employment of these powerful agents.

It was a received opinion of some of the ancient physicians, that muscular strength, and the general vigour of the human body, were entirely dependent upon the tension of certain fibres, and that their relaxation produced debility, and hence the terms tone and atony were employed; the former to express the due capability of the organs of the body to perform healthily their functions, and the latter the absence of the necessary strength. The human frame was often compared to one of the stringed musical instruments of antiquity, and many expressions borrowed from the uses of these causes of

harmony were introduced into common, and even into medical language. The solids of the human body were said to be composed of the finest threads or fibres, and that a fluid, to which the name of animal spirits or nervous fluid was given, was prepared and conveyed to them. Boerhaave speaks of the diseases *fibræ laxæ et debilis*: Baglivi, Bellini, Sanctorius, and a large proportion of those physicians who believed that the general laws which are observed to govern inanimate matter were applicable to the human body, and who introduced mechanics as explanatory of physiology, believed that relaxation and a want of elasticity were the cause of debility; and one of the aphorisms of Boerhaave was to show "what methods must be taken to remedy too great elasticity or weakness in the smallest fibres; what must be done when the fibres are too fragile or easily broken; and what, when they are too much contracted, or else distracted, by elongation." Our English dispensatories at the earliest period ranked such agents under the head of corroborant; for instance, "Whatsoever acts as a stimulus, and crisps and corrugates the fibres into a more compacted tone, will remove such weakness, and increase strength; and as also too much moisture may contribute to such relaxation, what has no other quality but absorbing and drying up such superfluous humidity may deserve, though accidentally, to come under such denomination."

One of the striking characteristics of this class of medicines is the power that some of them possess of preventing the recurrence, at fixed intervals, of

particular states of the body, and from which circumstance they have acquired the quaint but expressive name of antiperiodics. Amongst the unexplained phenomena attendant upon the morbid conditions of the living being, is that peculiar tendency to the return of certain marked symptoms, for several days, at the same hour in the day, at which they first developed themselves. Thus an aguish fever, coming on daily, will almost always, very early in the morning, commence its attack, whilst the tertian, which recurs at an interval of about forty-eight hours, for the most part begins at noon ; and the quartan, which, after an interval of about seventy-two hours, exhibits itself, is generally present much later in the day. Several of the affections of the nervous system have a strong tendency to become periodic. The painful disorders called neuralgic epilepsy, St. Vitus' dance, or chorea, and lunacy, have their precise intermissions and their paroxysms so evident, as to have engaged at a very early period the attention of medical observers ; but the causes that produce this singular habit of the constitution have been very uselessly sought for. That in many of the functions of the organs periodicity may be acquired, daily experience teaches us. There is no difficulty in so regulating the excretions both of the intestines and of the bladder, that the action shall only recur at expected moments ; but that the whole system should be called into morbid states, as in intermittent fever, still remains a subject for inquiry and investigation. But over this striking habit the tonics, both metallic and

végétale, exercise a peculiar influence, restraining, if taken during the intervals, the worst symptoms of the paroxysms, and gradually preventing their recurrence. It is probable that all febrile diseases have their stated moments of aggravation, and there are few of them that do not towards evening exhibit a degree of exacerbation, during which tonics do mischief, even if in the remission they have been found serviceable. The proper time, therefore, of employing them, is of greater consequence to us than the inquiry into the causes of the periodic return, contenting ourselves for this silence by the remarks of Sydenham on this subject: "I do not desire to be called a philosopher; and as for such as conceive they have a right to this title, and upon this account may possibly censure me for not having attempted to dive into these mysteries, I advise them to try their faculties in accounting for the various works of nature that everywhere surround us, before they go about to teach others. I would fain know, for instance, why a horse comes to his full growth in seven years, a man in twenty-one? why some plants usually flower in May, others in June; not to mention other innumerable effects, whose causes are as hard to be discovered? Now, if the learned ingenuously confess their ignorance on these points, I see no reason why I should be censured for being silent in a matter not less obscure, and perhaps wholly inscrutable, especially as I am persuaded that nature proceeds in this case, as in all others, with a certain regularity and uniformity; the matter of tertians and quartans being not less subject

to, and governed by, the laws of nature, than all other kinds of bodies are." In thus confessing our ignorance, I still must think this subject is most worthy of our deepest investigation : the periodical returns of certain actions are of infinite importance in the regulation of our therapeutic agents. Even in the action of those drugs which induce the intestinal canal to evacuate its contents, a knowledge is required of the habitual tendency in each individual, either by constant attention or by custom, to have a periodic discharge of the fæcal contents ; and in the cure of many diseases a neglect of obtaining this information will produce uncertainty and failure in the expected operation of nature assisted by art.

Sarsaparilla was supposed to correct the acrimony of the fluids, and sometimes " to wash out the lymphatic system," and hence to be a very valuable alterative ; there is no doubt, however, that it corrects the errors of digestion, which are symptomatic of disordered states of the body, and which have been induced, not by anything which produces a faulty decomposition of food, but by that which has excited one or more of the secreting glands, belonging to digestion, into unwonted action ; hence its great and important use in diseases produced by mercury, which show their primary effect upon the liver, their secondary effect upon the glandular system, upon the skin, or upon the immediate coverings of the bones. There is something in the mucilaginous principle of many plants that bears a strong resemblance to the salivary and to the pancreatic fluids.

This abounds in sarsaparilla, it may therefore be a substitute for these secretions, which are so much influenced by mercurial treatment, and which may not possess that power of sufficiently diluting the bile which is then so much increased. The circulation soon becomes slightly excited; the pulse is quicker and fuller under the influence of this remedy, and the kidneys having received from the blood more of that which is to be excreted, the urine soon becomes more highly coloured, and the capillary vessels being fuller, the animal heat is increased, until at length the skin is called into increased action; at first a warm and equable perspiration is produced, which may be augmented until a sudorific effect attends upon it. Thus an alteration gradually takes place in all the secretions, which is not the result of two or three administrations of the remedy; but is the consequence of a slow and well kept up action upon the *primæ viæ* in the first instance, and, in the second, upon the circulating fluid.

It is not a remedy which produces tone on the stomach by any astringency, nor is it capable of retarding fermentation; nor does it seem to correct the vitiated secretion of the gastric juice, for no immediate effect is perceptible upon the stomach, but the different fluids subservient to the organs of digestion, that are poured into the intestinal canal, are improved; and even where the liver has been enlarged, where mercurial preparations have been in frequent use, the remedy has been most serviceable. Under its use, those who have been rendered feeble

and miserable by mercury, have speedily acquired an improvement in health, in appearance, and in spirits ; and, in most cases in which that mineral becomes necessary, it is observed, that sarsaparilla assists the constitution to bear up against the destructive influence, and enables it to go through a long course.

Many of those who have underrated sarsaparilla, have alluded to its not fulfilling the expectations which, they say, were expected by its admirers as an anti-syphilitic. Now the earlier introducers of this root never pretended that the disease was to be cured by it without the aid of mercury, at least in Europe. It is true, that Franciscus Ximenes, in his notes to Margrave's Natural History of the Brazils, says, that there is nothing better, where the lues is not inveterate, than the decoction with a proper diet, and that in a few days health is restored ; but that is not medical authority. Vidijs gives it the third rank ; Trineavellius only says, that it has greater power than a decoction of guaiacum ; Fallopius, Massarias, Rudius, Nicolaus Massa, and Alexander Petronius, speak of it only in reference to that wood ; Fordyce and Donald Monro, to whom we must look in this country as the original introducers, thought that sarsaparilla root was only to be depended upon in venereal cases where mercury had failed, or had preceded the use of the decoction, or when it was combined with it, and that it was not to be trusted alone.

Dr. Donald Monro, who was the person that made us acquainted with the secret of preparing

the Lisbon diet drink, as ordered by the physicians at Lisbon, expressly states that it is efficacious in removing those venereal complaints that frequently remain after salivation and the free use of mercury ; and he says it is probable that the practitioners at Lisbon, who prepare this drink, sometimes add privately the solution of corrosive sublimate, or some other preparation of mercury.

The words of Cullen are constantly quoted ; but it is always to be borne in mind, that whatever is the value of his nosological arrangement, he can never be considered as a guide in the *materia medica*. Although I am fully aware of his claim to great sagacity in searching out the indications of cure, I cannot admire what his biographer has called “the enlightened scepticism with which he examined the chaos of *materia medica*.” I am one of those “who perceive traces of senility” in his treatise on that subject. I do not believe that one syllable he ever wrote on the articles of the *materia medica* does any credit to his great talents ; but the doctrines of general therapeutics which he laid down are of the utmost importance ; and indeed almost all we possess in the English language upon that neglected branch of science is copied from him. He says with regard to sarsaparilla, “If I were to consult my own experience alone, I should not give this a place in the *materia medica* ; for, tried in every shape, I have never found it an effectual medicine in syphilis, or in any other disease.

We cannot arrest any form of syphilitic disease by sarsaparilla alone : this vegetable may be used

where the constitution is debilitated, whether it be from the effect of the disease, or from any large quantity of the mineral; and there are certain stages of the formidable disease, in which mereury cannot be administered, when it aggravates rather than subdues, and these are generally the most painful and the most intractable forms; then it is found, that a good cold or warm infusion of sarsaparilla supports the energy of the frame, will give a tone and strength to the constitution, that no other remedy with which we are acquainted will do; and we may too occasionally find the advantages of combining it with opium or hyoseyamus, with the cold infusion in lime water, or with liquor potassæ, where, in addition to other complaints, the stomach is much disordered, and severe dyspepsia lends an aiding hand to accumulate misery on the poor sufferer; but that does not so often occur: hence the alkaline solutions, as they have been named, are very rarely required, and oftentimes are very injurious. Some of those medicines, which are sold under various specious titles, and contain sarza, are not adapted to the different forms of the malady; and every practitioner is now fully aware of the folly of pretending that the disease will yield to this remedy, but that its effects on the health are most striking, more particularly where bark, casearilla, gentian, quassia and calumba are altogether inadmissible. Acids may occasionally be given whilst the patient is under a course of sarsaparilla, but this requires much discrimination. They are seldom

serviceable to the old, but are so to the young, for the tendency to acescency in the different fluids, as life advances with us, is very marked.

What have been termed venereal blotches, and which often occur where mercury has been injudiciously administered, are often found amongst the very debilitated constitutions, which gin and brandy render perhaps for one moment happy, and for a vast number of days very miserable. Sarsaparilla is very efficacious, but none in the dispensaries and in the poor-houses can venture to trespass on the funds for the relief of the deserving, for the quantity required is very great. In such instances I have tried, and with success, elm bark, but the course must be very long ; sometimes these scabs are two or three years arriving at their full maturity, and sometimes as great a length of time is required for their cure, during which both physician and sufferer lose their patience, and very probably abandon the remedy, and substitute another ; such as Plummer's pill, or the acids ; and in some instances, but with the worst possible results, arsenic.

Calomel possesses medicinal powers of the most important kind ; it is a moderate laxative when given alone, and when employed in combination with other drugs, it becomes an active purgative. It has been classed by the authors on *materia medica* as a sialagogue, as an expectorant, as a cathartic, as an emmenagogue, as an alterative, and as a tonic ; and no remedy has been more largely em-

ployed in a greater number of diseases. In the "Thesaurus Medicamentorum," or the "Practical Synopsis" of John Pearson, is a long catalogue of disordered states in which it has been prescribed by medical men. Whether in reference to the smallness of the dose in which it will act, the certainty and speed with which it fulfils its duty, it may fairly be ranked amongst the most valuable of our medicinal agents. Its primary effect seems to be on the biliary secretions and on the mucous membranes, but its influence on the system is by no means confined to these portions. The glandular, the vascular, and the muscular system, may all be brought by the judicious physician to experience its energetic powers. In febrile affections, in chronic inflammations, in indurations of the liver, in schirrous affections of the other viscera, in dysentery, in worms, in cutaneous affections, in dropsy, it has been employed; and volumes have been written by some of the most experienced men, to point out the stages of those varied diseases in which it is safely employed. It will often remain on the stomach when no other remedy can be employed; no limits can be assigned to its power, over diseases, original or sympathetic, general or local, when in the hands of the skilful practitioner. If it fail to call into action one set of functions, its operation is perceptible on another. The bowels, the kidneys, the skin, the glands, may have their excretions increased, and according to the dose or the therapeutic agent with which it is combined, can any one of these organs be acted upon. It has been

more generally acknowledged as possessing moderately stimulating powers, although there are some who consider it should be ranged amongst the medicines which are immediately sedative. It certainly occasions a degree of excitement, and although this may be followed by a consequent debility of the organ called into action, yet if this action be protracted for a sufficient length of time, health under some of the most affecting trials may be restored, where the proper indications have been followed. Its cathartic powers, the most dwelt upon in this little volume, are but a small portion of the virtues of this medicine. It quickly influences the nervous and sanguiferous systems, and hence possesses means of affording relief in various inflammatory states, nor does it leave that debility behind, which so often attends upon medicines of greater activity. It is often successful where blue pill is nauseating and irritating to the bowels. As an alterative, it is given in small quantities; it quickly exhibits its agency upon the stomach and liver, when the functions of those organs have been disturbed; and though there are peculiar idiosyncrasies to which it is inapplicable, yet, as a general medicine, it may be more advantageously administered than any other, and its results are much more speedily produced. There are acute diseases, such as croup, in which it gives certain safety: There are diseases of childhood which yield more readily to calomel than to any other remedy, and rarely in such instances does it leave behind any predisposition, as has been supposed, to disease. The term alterative is found very com-

monly in older medical works, but this is used with great hesitation by the writers of the present day, who are more explicit in their definitions, and who very properly require that some well-applied name should be given to the different modes of action upon the human economy of all the remedies which are made use of. This term sprang up amongst the humoral pathologists, who entertained the belief that the diseases of the human body arose from some disordered state of the fluids, and that all disorders were mere efforts of nature to expel the peccant humour. They considered the blood as the principal source of mischief, and they employed such medicines as might alter its state; hence they talked of purifying and sweetening the blood; and fifty years ago, we had in our English dispensary a formula called decoctum edulcorans, or the sweetening decoction; it was made of sarsaparilla and china roots, and the observation is, "that it ought to be made the common drink in all ill habits, as dropsies, leprosies, and venereal infections; and such as proceed from too much moisture, or from fluids too sharp and saline."

A vast number of chronic diseases, which may soon wear a more acute form, depend upon some error of assimilation, by which the food is converted into blood. This does not give to the organs by which the actions of life are carried on, a due proportion of vitality, or it stimulates them in too high a degree; the great aim, then, of the organs destined for excretion, is to take up from the blood that which is circulating to the injury of the more

important tissues, and which, owing to some disordered state of the functions of the alimentary system, has not been carried off by the great excrementitious canal. Thus the skin and the kidneys are called into unusual action; eruptions of the surface of the body, deposits in the urinary fluid are the most ordinary consequences of this state; but where these functions are not duly performed, or where these organs have not the power of taking on an increased action, various disordered states arise, such as depositions in the glands, causing scrofula and swellings of various kinds, inflammations of joints, or of membranes, attended with effusions. The great skill which the medical man exhibits, is in discriminating what is the original cause of the disease, and its precise seat; he always must bear in mind, that what he hears complained of, what his eye-witnesses, is but the effect. He who sees in a child a swelled upper lip, or a soreness of the edges of the eyelids, does not order a local application to the one or the other; he knows that there is disorder in the *primæ viæ*; he suspects worms: if he does not alter this state of the digestive canal, he knows what the consequence will most probably be, that the whole of the digestive organs will soon partake of this disorder; that there will soon be an indurated state of the glands about the lower jaw, that there will be a prominent belly, that there will be a craving appetite, and soon an emaciation of the body; and that diseases will be developed, which will gradually waste the system.

The doses of calomel have varied in the most extra-

ordinary manner; and on looking over medical writings we are surprised at the great discrepancy of opinion upon the quantity to be employed; yet the most experienced practitioners draw the inference, that in the greater number of cases, where the object is to produce a gentle, but at the same time serviceable, action on the bowels, three grains will suffice. A less dose causes irritation in the alimentary canal, and unless some other medicine be employed, a quantity of biliary secretion is produced, which remains in the system, rather harassing than in any way benefiting the individual's case. In a dose of five grains the chloride of mercury may generally be looked upon as exciting a degree of irritation in this country; yet some of our most distinguished medical men have, in India, not only harmlessly, but with considerable advantage, administered scruple doses three or four times in the course of the day. The works of Dr. James Johnson, on "Tropical Climates," and Annesley on the "Diseases of India," give further illustration of this subject. Unacquainted as we are with some of the frightful maladies of the East, which so rapidly run their career, we cannot properly estimate the value of the practice, but from the concurrent testimony of practitioners, who almost unanimously agree upon the excellence of the principle of giving very large doses, until an immense quantity must have been collected in the intestinal canal. This plan of treatment has been attempted to be introduced

into this country, but it has not met with much encouragement.

The great success that attends these doses in tropical dysentery is evident from the cases of various authors related in the different periodicals. Thus Mr. Power's cases, in the third volume of the "*Medico-Chirurgical Review*," are very instructive. Scruple doses were given three times a day, in nine instances ; no other mode of treatment was pursued except in one instance, where venesection was had recourse to ; a quarter of a grain of opium was generally added. The calomel in a short time brought on ptyalism without hypercatharsis, or any distressing symptom supervening ; on the contrary, it seemed to have rather a cooling and sedative influence.

It seems that some of the older European physicians ordered calomel in very large doses. Amongst these, Horstius recommends a scruple or half a drachm "to attenuate the viscid humours." Sylvius ordered it in the same dose as a purgative. Dr. Friend, Juncker, and Geoffroy, are also in favour of such quantities. Dr. Wright, in the year 1794, said that he had been in the habit of giving scruple doses since 1760 ; but it is to Dr. James Johnson that the promulgation of this mode of treatment of dysentery and hepatitis only is to be ascribed. Dr. Cartwright, in the United States, treated syphilis with doses of equal magnitude. Mr. Cunningham, a surgeon in the Navy, likewise published cases thus treated. It has been said that

these large doses purge less than smaller doses ; that all the organs are preternaturally excited, and therefore the profuse secretion from the liver does not take place, whilst smaller doses produce great excitement of that organ ; that still smaller doses, if they do not produce secretion, act on the system as a morbid irritant, and occasion mercurial fever, which Nature removes by an increased secretion of the salivary glands. That fatal occurrences have been the result of injudicious doses of calomel there can be little doubt. Hoffman has given, in "*De Medicamentis Insecuris et Infidis*," two cases in which fifteen grains of the chloride of mercury were sufficient to destroy youths between the ages of twelve and fifteen. In one instance, the stomach attempted by vomiting to rid itself of the poison, the hands and feet began to tremble, great uneasiness and anxiety supervened, and on the sixth day death took place. The other died after suffering from great anxiety, and from vomiting of a black matter. The case mentioned in the "*German Ephemerides*," which terminated in twenty-four hours after profuse diarrhœa, was the result of half an ounce swallowed accidentally. Dr. Christison has, however, asked whether the violent effects described by Hoffman and Ledelius may not have arisen from the calomel having been imperfectly prepared and adulterated with a little corrosive sublimate.

There are some inaccurate stories of calomel proving destructive. Thus, Dr Sintalaer, in a very curious work published in 1701, entitled "*The*

Scourge of Venus and Mercury," (and which was the book that first excited Dr. Thomson of Edinburgh to investigate the history of the venereal disease,) after declaiming against mercury and its preparations, says—" Dr. Harvey tells us a story of an apothecary who gave three children a dose each of mercurius dulcis against the worms, and they all died on the same day," but there are no accounts of any such cases to be found well authenticated in later days. On the continent, great attention, both in France and Germany, has been paid to the purity of calomel, and to the difficulty that ought to be made in giving corrosive sublimate to any individual who wishes to purchase it. A medical police watches over these points, and such an establishment is become indispensable in this country, where so many fatal accidents have from neglect occurred.

A distinction is to be recognised between laxative and purgative medicines: the first merely emptying the bowels of such fæcal contents as may already be lodged there, whilst the second class have the power of inducing a still further increase of the quantity, and of stimulating the vessels to pour forth more excrementitious matter. The chloride of mercury will, according to the dose in which it may be given, produce either of these effects; but it is the biliary secretion that is most augmented, and this is particularly marked by an alteration in the colour and the odour of the fæces. All the preparations of mercury, more or less, have this influence; and patients who have, for a length of time, excreted only

blackish and unhealthily looking dejections, discharge them of a yellow hue, and of a different odour, after a few grains of calomel or of blue pill. The odour is oftentimes rendered more disagreeable, and a change takes place in the gases that are developed. The colour depends upon the kind and quantity of the bile secreted by the liver; and where any obstruction takes place, the stools are pale or whitish. The bile itself is of a deep yellow brown colour, and, as Abernethy has observed, it is like wetted rhubarb; if either of these substances be put into a large quantity of water, they will dye it of a bright yellow colour, which is actually the colour of these substances, yet it is so concentrated in the mass as to appear of a deep brown. Green bile is ordinarily the result of disordered function, although it has been occasionally found in the gall-bladder, where the liver is in a perfectly healthy state. Vegetables frequently give their colour to the fæces. The peculiar fætor of the residue of the alimentary matter is acquired in the large intestines; and if the small intestines at their termination, and the large intestines at their beginning, be examined, there will be found almost a line of demarcation. To what this is owing we are at a loss to say. It is not alone a chemical decomposition that occurs, but the animal economy imparts a peculiar change. The examination of the fæces has been but little prosecuted: although a subject of some interest, it is one that requires great enthusiasm in the cause of science, and very little delicacy in the sense of

smell; nay, the very perusal of some authors' inquiries is nauseating.

Lavoisier wrote a memoir on the nature of the aeriform elastic fluids, which are disengaged from certain animal substances during fermentation; his experiments prove that human excrement emits, at the temperature of 60 degrees, a gas, a mixture of eleven parts carbonic acid gas, and one part of an inflammable gas, which burnt with a blue flame, and was, therefore, probably carbonic oxide gas; the experiments of Thenard and Dupuytren prove, however, that sulphuretted hydrogen is likewise exhaled from human fæces collected in large quantities; the changes that take place out of the body, by the action of the human air, appear to be very rapid. Fresh fæces do not effervesce with dilute sulphuric acid, but old moist fæces do, emitting the volume of carbonic acid gas which they do at first. The chloride of mercury appears to exercise over the action of the large intestines some power, as the gaseous exhalations materially differ when it has been employed; and this is particularly striking in children, the odour of the dejection being very materially influenced in them, and much more offensive factor being the result; and this, in general, is a proof of the due action of the medicine, for the system, previously disordered, appears thus to rid itself of a deleterious agent.

Whether the extrication of the different gases be natural to the human body, or whether it be the result of our artificial habits of life, I will not presume

to say. It is stated that our living on animal food is the cause of the greater number of the diseases to which man is subject, and that it also imparts to that which is excreted from man the offensive odour; and certainly many animals that are herbivorous are inoffensive on that point, whilst carnivorous animals are the reverse; and some philosophers have entered upon some curious speculations arising out of these circumstances. Rousseau, indeed, draws a conclusion, that man is not calculated for the social state, because his excretions, his effluvia, and his emanations, are destructive to his fellow-creature. Whatever may be the means by which the inflammable air is extricated from the intestines, certain it is that great indications of the nature of the matter taken in by the mouth, and its effects upon the health, may be drawn from a knowledge of the odour evolved, and from correcting it by the administration of medicine. Disease commencing in the rectum and large intestines, may often be recognised by the quantity of flatus evolved, and unnatural diet will keep up an irritation which may prove very injurious.

Where the chloride of mercury is too irritating alone, it may very properly be combined with other remedies, and there is a pill which has long been known to the profession, under the name of Plummer's pill, which has been found a most useful medicine. The *pilula hydrargyri chloridi compositi* is now made of chloride of mercury and oxysulphuret of antimony, each two drachms; of gauliacum resin powdered, half an ounce; of treacle, two drachms;

the chloride of mercury is rubbed with the oxysulphuret of antimony, afterwards with the guaiacum resin and the treacle, until incorporated. There is an alteration of strength from the formula of other Pharmacopœias, and the treacle which is now substituted for the mucilage, renders the mass more difficult of rolling, and if it be done by the dirty and unseemly mode of forming the pill between the fingers, it leaves them in a very sticky, clammy state. The *Edinburgh College* was the first to introduce this pill into its Pharmacopœia, the London followed the example, and it is a great favourite with many practitioners, and in the dose of from five to ten grains is most advantageously employed; it is generally called an alterative, but its efficacy in many complaints should place it amongst the more defined classes, and in some states it may be denominated a tonic.

Mercury, in its various forms, has been most indiscriminately employed in the cure of diseases of the skin, whilst some have drawn fine distinctions of those states in which it may prove serviceable. The injudicious administration of this remedy quite as often produces disordered states of the dermoid coverings as it relieves them. It more generally proves serviceable, where the skin exhibits the state of the digestive organs, where the functions are thrown into an unwonted state, in consequence of some derangement of the important organs upon which assimilation and irritation depends.

In many constitutions there will be existing, at the same moment, in various parts of the skin, pa-

pulæ or pimples, vesiculæ or vesicles, containing lymph, and pustulæ or tumours, containing purulent matter, and all these are alike produced by the same fluid, or are attempts to excrete from the system something which would contaminate the tissues, or render the organs incapable of healthily performing their functions. The great object in applying remedies is to discover whether, from the mass of blood, the excretion is best performed by the skin, by the lungs, by the kidneys, or by the great excrementitious canal; for, from all these organs, it is evident, there is constantly thrown off that which is injurious, and which cannot be admitted to form part of the human organisation. In some individuals the skin is called into immediate action; the slightest deviation from the due function of the stomach produces redness, heat, and vesication, in others a crop of papulæ, and in others again vesicles; and this sometimes occurs with extraordinary rapidity, a few hours being sufficient, nay sometimes a single hour, to cause blotches of red or elevation of the skin. Many individuals have scarcely taken a meal, in which some portion of fish has been swallowed, before this effect has been observed, and this is generally ascribed to some peculiar idiosyncrasy; some vegetable substances, or the acids, will, in others, cause the same circumstances to arise. These results are sometimes so quick, that it is almost impossible to believe that imbibition of the noxious agent has taken place, and that it can have traversed the circulation, and have been deposited in any of the numerous small glan-

dular projecting bodies, commonly called papulæ, but which are believed to be small granular glands, secreting albuminous fluid, for the formation and regeneration of the rete mucosum; yet the extraordinary appearance of the cutis, presented during the excitement of an eruption, gives us reason to believe such to be the case. If the mass of blood require to be gradually relieved from the impurities which it determines to the skin, sarsaparilla, given with perseverance, with strict attention to diet, will effect more good than any medicine with which we are acquainted, and will leave none of those prejudicial consequences which the active minerals are uniformly observed to do; and when the skin has for some time been made the channel by which nature excretes, so far from benefiting the patient, by directing this excretion to other channels, great mischief will be done; the skin disease will be aggravated or altered, and there will be some greater enemy to contend with. Thus purgative medicines and the favourite mineral waters of Cheltenham and of Harrogate, which are so often prescribed for long-standing cutaneous disorders, frequently leave the patient in a debilitated state, and in exchange for a papulous or a vascular eruption produce a squamous state. In the early commencement of these diseases, purgatives are the great sources of relief; then it is that we have it in our power to determine to the bowels or to the kidneys; but when the time has ceased for this condition, we must look to other means of cure. When a chronic state occurs, when it has lasted for some time, when the patience has

been almost exhausted, if we have been led to try other remedies, we turn with satisfaction to sarsaparilla ; and there are likewise other plants yielding their virtues, which, when this fails, will be most successful. Amongst these, my own experience has directed me to elm bark, and to the solanum dulcamara, or the bitter sweet. Medical men have very seldom a fair trial of their skill given them in these long lasting diseases of the skin ; patients soon get wearied of the perseverance demanded, and of the diet to be attended to, without which no cure can by possibility be effected. Every physician in London has constant opportunities of seeing skin diseases brought before him, for which he is requested to write ; and he fully knows that opinions have been obtained elsewhere ; that the individual has tried, over and over again, mercury, sarsaparilla, colchicum, creosote, and sometimes prussic acid ; but there has been no steady adherence to any plan, and he will only be classed amongst those “who have done nothing for me.” Yet he knows that by gentle treatment, that is, the avoiding of all mineral medicines, by the use of the sarza or some of its best substitutes, by the strictest attention to diet, he can in due time effect a permanent cure. The original character of an eruption is much sooner changed by medicine than is generally believed ; that which began by the least elevation of a papilla, or a very slight effusion of lymph, may become, more especially if mercury be injudiciously administered, a complex disease, involving the whole of the dermoid coverings, each of which has

its own peculiar morbid derangement. Some very high authorities in this country, and in France, have divided all the diseases of the skin into those which are inflammatory and those which are not. If by simple redness is meant inflammation, this distinction may hold good ; but the mere injection of the capillary vessels with blood, and its detention there, cannot come under this designation, and some of the cutaneous affections are evidently affections of the glands of the skin, with induration and elevation. If the means generally employed to reduce inflammation be had recourse to, the worst possible effects are oftentimes visible. It is true, that looking into the periodical literature of the day, we find cases mentioned as cured by depletion, and we have some clinical lectures upon those cases, but they are given in so loose a form, and in so unsatisfactory a manner, that no inferences can be drawn from them. We shall scarcely ever find the date of admission given, the length of time in which the cure has been effected, or any of those data which enable any but the immediate student of the hospital to follow the preceptor. It is, indeed, that which has given so poor a character to the clinical instruction of the metropolis, and that has so frequently caused observations to be made as to its inferiority to the schools of Edinburgh, and of the continent. From all that is learned, it is in many institutions very valuable to the pupil, to whom every attention is very properly paid ; but to the reader, and to the profession, the clinical lectures, generally speaking, must prove very unsatisfactory, that do not enter

into the minutest details, and in which every occurrence is not duly noticed.

How often do we find eruptions which commence with a mere patch of erythema, by injudicious treatment degenerate into papulæ, then into vesicles, and at last pustules; such an endless variety being exhibited during the continuance of the affection, as to render all attempt at diagnosis in the intermediate metamorphosis quite out of the question. Mr. Judd has well explained this. "If I wished," he says, "to define nature's method of producing the puniceous patch of mottled skin, the papulæ of lichen, the vesicle of rupia, or the pustule of ecthyma, I would take a simile—the blushes arising by simple friction upon the skin, and compare them with the irritation produced by animal poisons; and what, let me ask, would be the effect of the farmer's labourer lacing his boot too tight, or the soldier blistering his foot by the march? Why, a small degree of friction from either cause would produce redness or erythema, and, if carried a degree or two further, it would by inflammatory action occasion lymph to be thrown out, and generate a blister or vesicle; and a degree of friction a little beyond this would lead to the formation of pus, and make the latter a pustule; and thus all the intermediate stages will have been gone through, from the erythema or puniceous patch, to the throwing out of clear lymph or genuine pus, as in ecthyma; these are but similar changes to those we observe in the vaccine vesicle, or in a vesicle that becomes a pustule by the mere friction of the clothes."

When a slight action has once commenced on the skin, it should be immediately treated with great care; the strictest attention as to diet and cleanliness; for in cachectic habits we never can know what form the disease may assume, and if it be connected with a virus, either animal, vegetable, or mineral, it may become inveterate. Inoculation through the skin may produce more frequently mischief when there is inattention, than we may be aware of. Many trades, many occupations, such as the grocer's, the washerwoman's, expose those who follow them to various eruptions, which do not always wear the same form, and which only occur where circumstances predispose them to the infection. How necessary it is to be careful what medicine we employ, we may judge from the circumstance that, even in a generally healthy state, some drugs will cause severe eruptions, and when there is the slightest disorder they will affect still more strikingly. Thus balsam of copaiva will, in many individuals, produce eruptions, but when the urethra is inflamed so as to demand its use, a crop of pustules will often supervene. Mercury is oftentimes the cause of the greater number of those eruptions which are ascribed to syphilis, from the crimson-coloured patch, which forms more than one-third of these cutaneous affections, to the worst and more uncommon forms of squamous eruptions and of tubercles; yet they yield to constant employment of sarsaparilla, either in its form of compound decoction of the liquor sarsaparillæ, or any well-made preparation. I have seen cases of the utmost

disfigurement and of loathsomeness, of misery, of suffering, and of exhausted constitution, restored to clearness, plumpness, to ease, and to health and vigour, where desperation has almost seized the victim; and this has been owing to judicious and unremitting perseverance in the employment of sarza.

The first ordinary symptoms of improvement, after taking sarsaparilla, is evinced by the kidneys taking on an increased action, and the urinary fluid depositing a greater quantity of albuminous matter. Of the mutual dependence of the skin and the kidneys upon each other, and the manner in which the one relieves the other, I need hardly in these days of sound physiological knowledge say much; but those who wish both instruction and amusement in the consideration of the subject, may be advised to read one of those practical, useful, yet jocose lectures, which that enlightened man Abernethy delivered: this may be found in the *Lancet* for the year 1826. It is very instructive, and we thence learn how much the secretions are vicarious to one another. In the exanthematous diseases, sarsaparilla is quite useless; these run a regular defined course, and the only duty of the medical man is to watch their progress, and obviate any bad symptom that may present itself, always remembering to avoid a meddlesome interference with the rules laid down by nature herself. In the papulous diseases, taking the three affections, called strophulus, lichen, and prurigo, as the genera; when they first occur, common attention to the digestive organs will be sufficient to remove them, but they generally occur as symptomatic of some disease

which demands our attention, and sarsaparilla is only occasionally required: in the squamous diseases it is very valuable; lepra, psoriasis, and pityriasis, even in their worst forms, very often yield to this in preference to any other remedy. The bullæ, including under this head erysipelas, pemphigus, and pompholyx, are rarely benefited by it. In the pustulæ of a chronic order, I believe it to be the most decidedly useful of all our agents. I have known the most inveterate cases of impetigo, of porrigo, and of ecthyma, their different species and varieties, treated with much greater success by it than by anything with which I am acquainted; and in the greater number of instances mercurial remedies would have been highly injurious. The most complicated forms of these diseases demand the most scrupulous attention to diet, and to the taking large quantities. The vesiculæ, such as herpes, rupia, eczema, too, are to be cured by it; lupus and acne, amongst the tubercula, are alleviated by it. Where any of these accompany other diseases, sarza will prove beneficial as a general tonic, and oftentimes assist the action of other remedies. In those eruptive diseases which often occur where leucorrhœa is present to a very considerable extent, a quick change will be produced in the state of the mucous membranes. These affections are frequently concomitant, and it is not at all unusual to know, that very young females who have been prematurely subjected to disordered states of the mucous membranes of the vagina from some irritation—and this occurs occasionally in very early life,

even before the appearance of puberty—are very liable, as life advances, to have eruptions, especially on the face, which sometimes are exceedingly difficult of cure, but which will yield to sarsaparilla and to elm bark; these will be aggravated by injudicious treatment. This state requires great perseverance in the means of cure, the most exemplary diet, abstinence from stimulus of the most common kind; for even the smallest quantity of salt used in culinary purposes has been known to produce irritation again.

Mercury, improperly administered, is the source of very considerable mischief. At the same time we must weigh well the different statements that have been made by various authors of the effects which it has produced; for, as Dr. Christison has very justly observed, if credit were given to all that has been written, and is still maintained on this subject, almost every disease in the nosology might be enumerated among its secondary and chronic effects, for there is hardly a disease of common occurrence which has not been imputed by one author or another to the direct or indirect operation of mercury. The administration of such doses as do not affect the bowels may be persevered in for some time without affecting the constitution, more particularly when in the form of the blue pill; and although inunction is frequently beneficial, more especially in correcting the biliary secretion, it is very apt to derange the digestive organs, if they are at all irritable. It is always of very considerable importance to pay attention to the state of the

weather, both as to the prevalence of disease, and as to the proper period at which remedies are to be administered. The older physicians laid particular stress upon the influence of the sun and moon upon human bodies; and Dr. Mead has collected some very curious instances to prove the influence of the planets. Modern science and experience have shown that although the paroxysms and periods of disease are guided by regular laws, there is no reason for the belief that the celestial bodies are in any way connected with them, but that they are dependent on atmospheric changes. We find, under particular aerial states, that epidemics are prevalent, and that their cure must vary according to the changes that produced them, and medicines will, under such circumstances, lose much of their power, and even be productive of evil consequences. During fine clear weather the preparations of mercury seldom affect the bowels, nor do they produce that depression of spirits which is so often observed to accompany their use during damp moist weather. This does not altogether depend upon the state of atmosphere determining from the outward surface, and preventing a free action of the skin, because the coldest weather, if it be dry, is well adapted for its administration. It seems, in some measure, to be connected with the electricity of the body. We are well aware, if the weather be damp and foggy, that a listless and languid state is produced; whilst during dry weather, however cold it may be, there is a feeling of light-heartedness and cheerfulness pervading the whole of the system. In the first

instance, the atmosphere is robbing us of our electricity, which it greedily absorbs; in the latter case, the dryness of the air is such, that it leaves us in possession of the electricity which seems to belong to us; hence the buoyancy of spirits on the cold frosty days of December and January, and the suicidal despondency of November, and hence the elasticity, the life, and animation of the Frenchman, the sluggish, heavy movement of the Dutchman, the variable feelings of the Englishman, one day full of hope and cheerfulness, the next day at war with himself and the rest of mankind.

During moist states of the weather, mercurial preparations should be sparingly prescribed; and when, from the diseased state of the system, they cannot be dispensed with, very great attention is to be paid to the clothing. To every one in damp, moist conditions of the atmosphere, flannel is a great comfort, but silk is the most useful covering of the body. It is by far the best friend and comforter that can be applied. We know that if a silk handkerchief be perfectly dry, lightning the most accumulated could not pass through it, so decided a non-conductor is it; hence, if worn next to the skin, the air cannot absorb the electricity of the human body. Silk waistcoats, drawers, and stockings of the same material, are of the greatest service during the humid state of the winter months of this country. The hypochondriac, the nervous, will derive from them more benefit than from the most active tonic, and they will prove a more invigorating cordial than any spirituous dram; nor are

the effects transient, for a buoyancy of spirits, and an agreeable warmth, are thus diffused over the whole frame. Patients, therefore, during mercurial influence, are much better wrapped in silk than even when confined to bed; but this latter precaution can more generally be taken, and hence the different preparations are always best administered on the invalid retiring to bed, and he should be kept there until the effects have been produced. This is more especially the case with calomel. As much mischief has arisen from the want of proper precaution, as from large doses, and the habit of the individual is always to be duly weighed and considered. Females of a delicate, nervous, irritable frame, are rendered languid, peevish, incapable of fulfilling their usual duties; they feel chilly, they easily shed tears, are sometimes almost hysteric; and though they have no actual suffering to endure, are almost as miserable as if they had it to encounter. On the other hand, the stout, robust, plethoric individual, who probably has to bear very great pain from the nature of his disease, seems quite insensible to any unwonted effect; it, however, more generally acts upon such a constitution with greater energy, and leaves behind it a more decided state of debility, if it be persevered in for any length of time, or if it be often repeated. The inhabitants of this country are very little influenced by it, comparatively speaking, from their high mode of living, and from their being so much habituated to the changes of climate; but foreigners are not so fortunate, nor can they bear a dose which, in their

native air, they could take with impunity. Indeed, they have a horror of blue pill and of calomel; their incapability of bearing it is greater here than in their own climate.

The annals of practice in India likewise show that doses of mercurial preparations are very much influenced by a dry climate. Some very highly intelligent men there have prescribed quantities, and their repetitions which, in our moist and uncertain atmosphere, would very quickly injure the constitution, and leave it in a state to be acted upon by every morbid exciting cause that might present itself. Whether all this is to be attributed to electric states of individuals, or of the atmosphere, remains to be explained. Some of the phenomena which are observed demand inquiry; nor have they undergone much investigation. There seems to be a peculiar state of constitution in which the electric spark is developed, and elicited from an individual, and this when he is in a state of high susceptibility, from the action of any internal or external agent. Nervous individuals exhibit luminous sparks from the hair when it is combed, which are not visible when they are in health, and this is an indication of cerebral excitement. I once witnessed this, in company with a physician, in a highly intellectual lady labouring under great nervousness; electric sparks, of the most vivid lustre, were elicited by combing, but they disappeared when health was restored.

Dr. Pitcairne's case of the effect of atmosphere is, perhaps, the most remarkable we have on record, both in regard to the disease and its concomitant

circumstances. Being at a country-seat near Edinburgh, in February, on a fairer day than usual at that season, and the sun looking reddish, he was seized at nine in the morning, the very hour of the new moon, with a sudden bleeding at the nose, after an uncommon faintness; and the next day, on his return to town, he found that the barometer was lower at that very hour than either he or his friend, Dr. Gregory, who kept the journal of the weather, had ever observed it, and that another friend of his, Mr. Cockburn, professor of philosophy, had died suddenly at the same hour, by an effusion of blood from the lungs; and also five or six others of his patients were seized with different hæmorrhages. Such instances are of importance, and should be inquired into, with a view of throwing some light on subjects which ought not to escape the most anxious investigation.

One of the ill effects of mercury is the production of salivation, or, as it has likewise been termed, ptyalism; this is one of the proofs of the action of the metal upon the system, and has been produced by very small quantities, very rapidly. Various are the theories which have been brought forward to account for this determination to the salivary glands; but it would be useless for me to attempt any explanation, for none of those that have been advanced are perfectly satisfactory. There seems, in some constitutions, a peculiar idiosyncrasy, which is exhibited by the incapability of taking a very minute quantity of this mineral without this effect being very rapidly produced. Five grains of blue

pill, taken for three successive nights, have been known to produce salivation; and Dr. Ramsbotham, in the "Medical Gazette," states that death occurred after such a small quantity. I think that, in many instances, where such results have arisen, the blue pill must have been adulterated, or that the confection of roses must have contained a larger quantity of acid, and that the resulting decomposition must have caused the formation of a destructive salt.

Dr. Crampton has, in the "Transactions of the Royal College of Physicians," narrated a case, in which calomel, in so small a quantity as two grains, excited salivation; this was followed by extensive ulceration of the throat, exfoliation of the lower jaw, and death.

There are numerous substances, both in the vegetable and mineral kingdom, which will produce very considerable salivation, though of a different character from that which is attendant upon the use of this metal. Amongst the minerals, the salts of gold, of antimony, and of copper, are the most remarkable. Croton oil, digitalis, amongst the vegetables. The imagination, too, has great influence. In the "Medico-Chirurgical Review," we are told that a very salutary salivation has been produced by bread pills, in a very hypochondriac patient, who fancied he had syphilis, and that he ought to be put under the influence of mercury, and particular injunctions were given him to leave them off as soon as the mouth became affected. Sauvages speaks of twenty species of salivation, enumerating that which

attends upon small-pox, occasionally upon gout, upon pregnancy, and even upon syphilis, where no mercury has been administered. Cases of salivation in all these states are to be found in our periodicals. In the twenty-sixth volume of the "Medical and Surgical Journal" will be read an instance of a lady who, for a fortnight, daily excreted two or three pints of viscid fluid. Two physicians were called in, during different periods of the affection; they were equally unsuccessful in putting a stop to the salivation. Great care was taken to ascertain if any empirical remedy had been used, but there was not any ground to believe that mercury had, in any shape, been taken. The diseased state yielded spontaneously, after all remedies had been given up. It has accompanied cynanche, paralysis, fever, bronchitis—but there is a very striking difference in the symptoms that appear at the same time. There is no fœtor of the breath, no brassy taste, no sponginess of the gums.

Dr. Bostock has, in the "Medico-Chirurgical Transactions," stated some experiments that he had made upon the saliva during mercurialisation. He had some years before analysed the fluid in its ordinary state. The deductions to be drawn from his labours are, that the chemical constitution of the mercurial is, in many points, different from the common saliva, and this consists in the presence of a quantity of animal matter, possessing properties which resemble those of albumen in its uncoagulated state, or as it is found in the serum of the blood. The change would appear, he says, to consist essentially

in the conversion of the animal matter from the state of a mucous to that of a serous, or rather an albuminous fluid. Dr. Bostock made his examination of the saliva when the system was fully under the influence of the mercury, when about two quarts a day were excreted, but there was no appreciable trace of mercury in the fluid. The analysis led him to a physiological inquiry into the action of this remedy, for which I must refer you to the paper in question. When the system begins to evince that it is under the control of the medicine, various symptoms are exhibited; sometimes they are of a mild nature, at others they are very violent; the mouth sometimes first displays the constitutional affection; but it is most generally preceded by some degree of acceleration of the pulse, a degree of feverish excitement, and various nervous affections. If the ptyalism be suddenly established, without much previous admonition, the excitability of the system is much greater, and general constitutional disorder is evinced, and the soreness of the mouth causes an irritability of the whole frame; considerable absorption of the fatty matter, attended by a great extenuation of the body, is quickly visible, and the stoutest person generally becomes thin and emaciated; the excretions from the various organs are altered in appearance, and oftentimes in odour; a peculiar state of skin, evinced by a very singular fœtor, which is quite diagnostic of the mercurialisation, and of which it is impossible to convey any impression by language. It materially differs from the smell that issues from the body after sweating

has been produced by Dover's powder, or that which occurs during some eruptive fevers, or upon mental derangement ; it is a peculiar characteristic, which occasionally lasts after ptyalism ceases. When the action is very severe upon the mouth, the misery which taking any food produces is enough to prevent the indulgence of the appetite, which is sometimes not at all diminished ; but when the ptyalism has completely ceased, the appetite is of the most ravenous character, which nothing appears to satisfy ; then nutrition recommences, the deposition of the well-digested secretion in the various parts of the body, which have lately lost their usual quantity of fatty matter, is very rapid, and the frame speedily acquires even a greater bulk than it previously had, and oftentimes the standard of health is more firmly fixed than it was before ; but this is not always the case : some individuals are left in a state of great feebleness, and liable to every shock that would, under ordinary circumstances, be light. Sometimes local disease has lasted for some time, and even run to a very outrageous extent ; ulcerations of the tongue, exfoliations of the alveolar process. Various are the means by which the ill effects of the metal have been attempted to be counteracted. Sulphur has acquired considerable celebrity, and has been said to diminish its action. Dr. Lettsom says he generally found it sufficient, with the addition of bark, to strengthen the general system. Dr. Bateman gave it freely with chalybeates. Pearson thinks free exposure to the air quite sufficient. De Haen ascribes great power to electricity, and mentions its effects on one

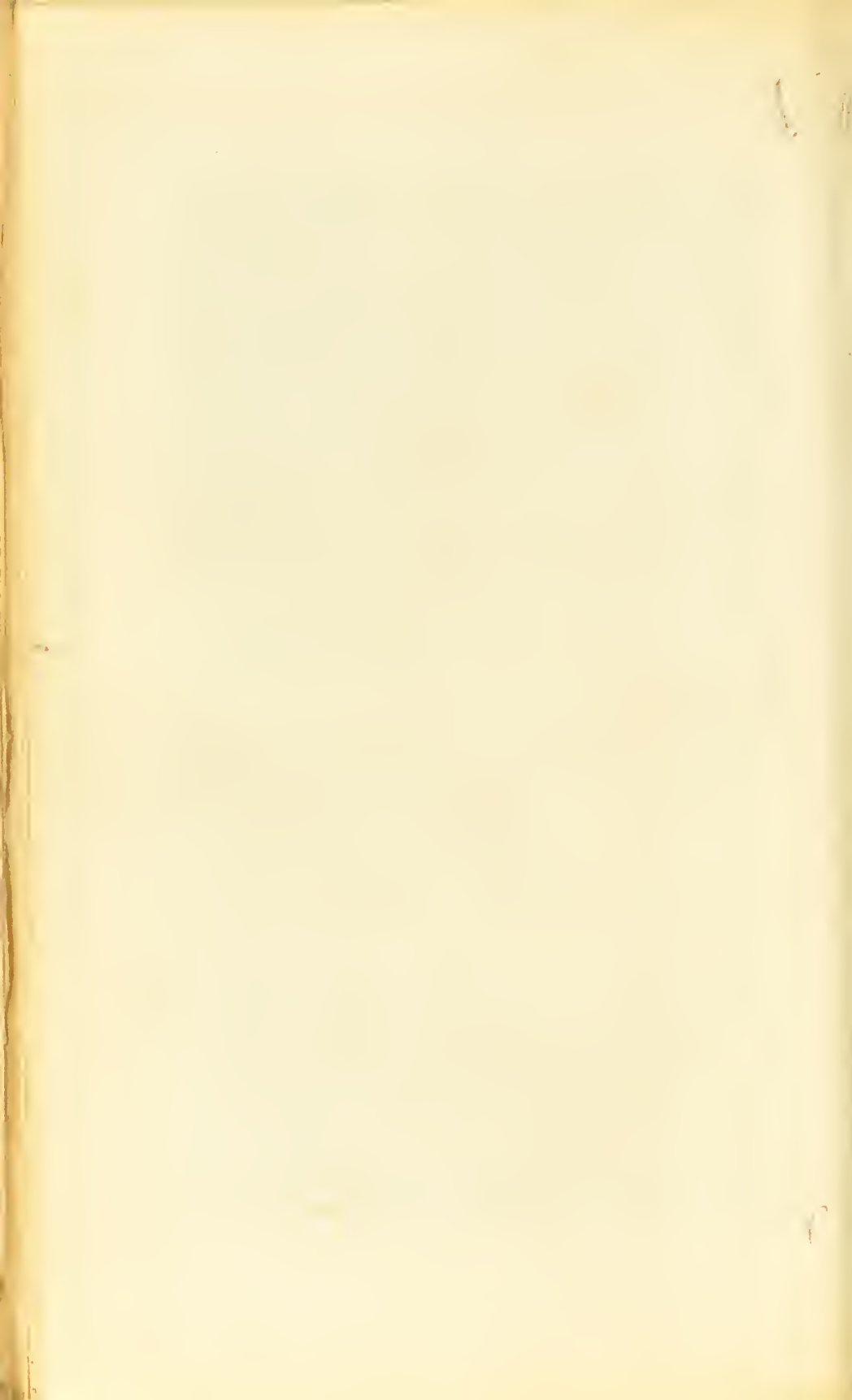
patient, who had a dreadful "tremblement," so that he could work no more ; he could neither eat nor drink without assistance, nor render himself intelligible, and, like an infant, was obliged to be assisted for the discharge of the natural secretions. Various means have been adopted to check the salivation when profuse ; opium and the narcotics, gargles of tar, superacetate of lead, which, however, blackens the teeth, have been employed as a local remedy. Dr. Wallace, in his valuable lectures, recommends the nitrate of silver pointed to be applied to the ulcerated edges of the gums, from which the greatest comfort is derived by the patient.

The fœtor of the breath is best corrected by a lotion of chlorate of lime and camphor mixture.

THE END.

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